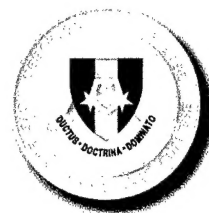# PM

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1998 Logistics Reform Focus Day

PROGRAM MANAGER

IN THIS ISSUE:

EIGHTH SEMIANNUAL
PEO/SYSCOM
COMMANDERS CONFERENCE

ARMY TACMS-BAT
PROJECT OFFICE —
"SUCCESS IS OUR MISSION"

NATIONAL MISSILE DEFENSE —
ONE TEAM, ONE PROGRAM

IMPACT OF
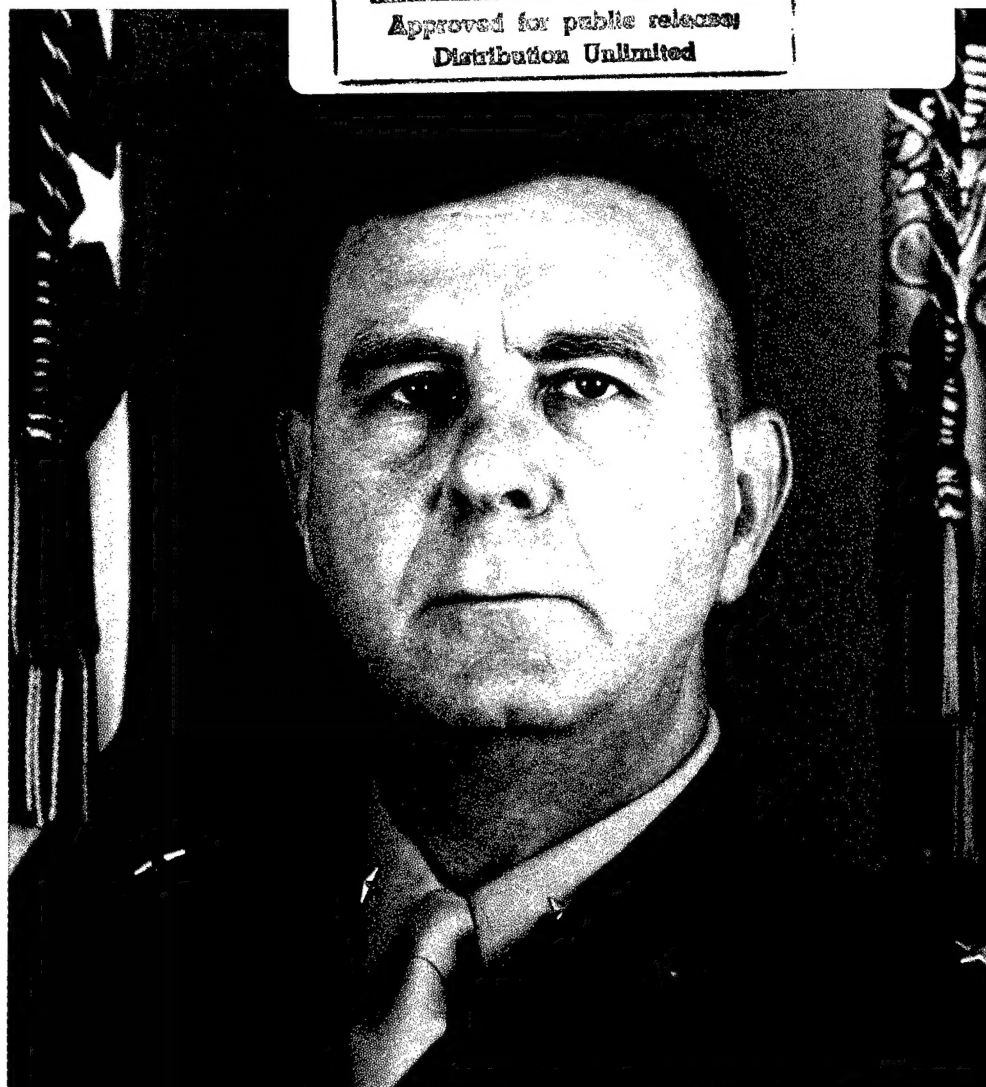JOINT TECHNICAL ARCHITECTURE
ON NAVY ACQUISITION

Marine Brig. Gen. James "Jim" Feigley

*Leads Effort
to Deliver AAAV –
Nation's Most Advanced
Amphibious Assault Vehicle*

" ...The ultimate application of any weapon is always a human tragedy, and it's something that hopefully we can avoid. But if the situation requires it, I would not want to be on the other end of AAAV. Our enemies will fear the presence of this machine."

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Designing Digital Defenses

Success Means Going Out of Business, Houley Says

Defense Department Makes Progress with Reform Actions

Fixing the Fiscal 2000 Defense Budget

SECDEF Appoints Defense Policy Panel on National Security and the Globalization of Business and Industry

Army's MANPRINT Puts Humans on Par with Technology

U.S. Army Materiel Command Establishes Logistic Support Unit

AAAV — At the Brink of Prototype

COLLIE J. JOHNSON

> "... Defense acquisition has always been, is now, and I believe will remain in the future, principally a human endeavor. And while we can create a lot of processes, use a lot of tools by which to improve and speed up our work, all the important things sooner or later come down to people, their intellectual abilities, and their capability to work with other people. Those out there who think that it's otherwise have something to learn."
>
> —Marine Brig. Gen. James "Jim" Feigley

AT A PENTAGON CEREMONY ON MAY 4, SECRETARY OF DEFENSE WILLIAM S. COHEN PRESENTED THE DAVID PACKARD EXCELLENCE IN ACQUISITION AWARD TO THE U.S. MARINE CORPS, DEPARTMENT OF THE NAVY ADVANCED AMPHIBIOUS ASSAULT VEHICLE PROGRAM TEAM. THE TEAM ACHIEVED SIGNIFICANT REDUCTION IN TOTAL OWNERSHIP COST THROUGH IMPLEMENTATION OF COST AS AN INDEPENDENT VARIABLE, INTEGRATED PRODUCT AND PROCESS DEVELOPMENT, AND VIRTUAL PROTOTYPING.

arine Brig. Gen. James "Jim" Feigley is no stranger to amphibious warfare and equipment. Commissioned a Marine Corps infantry officer in 1972, he has spent the better part of his 26-year career either commanding amphibious assault units or working at staff levels directly associated with ground/amphibious assault vehicle systems.

In June 1993, the Navy handed Feigley — by now an experienced amphibious warfare officer and acquisition professional — perhaps the biggest challenge of his career: Direct Reporting Program Manager for the Advanced Amphibious Assault Vehicle (AAAV). Classified as an Acquisition Category ID (ACAT ID) program, AAAV remains the only ground combat major defense acquisition program so designated throughout the Marine Corps.

Designed to replace the current Marine amphibious assault vehicle (AAV7A1), AAAV is a tracked armored personnel carrier, yet not entirely; a fighting assault vehicle, yet not entirely; a high-speed water craft, yet not entirely. It is all of these and more in one unique package — a technologically superior, powerful,

Johnson is Managing Editor, Program Manager *magazine, Visual Arts and Press Department, Division of College Administration and Services, DSMC.*

and flexible amphibious vehicle, capable of changing from land-based operations to sea in *45 seconds*.

Why the Need?

Feigley explains that the need for AAAV stems not only from the Marine Corps' view of its contribution to national defense in the future, but also its view of how the world geo-political climate will evolve in the next 20 years. Because the majority of the world's centers of gravity for commerce, technology, population, and politics will be primarily located along the shorelines or littoral regions of the world, and many of those countries are in transition or actual conflict, it was clear to the Marine Corps some years ago that there was a need for a concentration of military capability that can operate in those littoral regions.

With that as a given, the Marine Corps looked at the kind of systems that it had or could modify in order to provide the capability to operate in littoral regions, or what it could do to compensate by changing doctrinal tactics. None of these alternatives worked and thus the need for a new approach was required.

"When one looks at the need to conduct military operations in littorals," says Feigley, "and applying the principles of maneuver warfare to amphibious operations, it was clear our current capability could never do the job, and what fell out was a need for a self-deploying, high-speed amphibious vehicle – the AAAV."

In 1987, the Marine Corps developed a mission need statement for just such a vehicle, followed by not only a Defense Acquisition Board Review but also a Defense Resources Board Review. As a result of the two reviews, DoD gave the go-ahead in 1988, basically allowing the Marine Corps to proceed into concept exploration.[1]

It Takes a Team

In June 1993 the Navy was looking for one good Marine to run the program. And Feigley was their man. True to his Marine training, he hit the ground running as the Direct Reporting Program Manager for the Advanced Assault Am-

phibious Vehicle Program.[2] First established as a Pilot Program for the Department of the Navy's Acquisition Reform Office initiative "Partnering with the Fleet," the AAAV is currently scheduled to begin prototype testing in August 1999, and initial operational capability in 2006.

Such an ambitious schedule required that Feigley assemble the right team to manage and develop the world's most sophisticated amphibious assault vehicle – an amphibious vehicle that could indeed withstand the rigors of warfare well into the 21st century. In his words, Feigley was looking for "a dedicated team, requiring a mixture of skills and the right balance of DoD and Navy officials, defense contractors, and civilian acquisition professionals."

And since a strong team effort was absolutely vital to program success, the Integrated Product Team (IPT) and Integrated Product and Process Development (IPPD) team concepts were the strategies chosen to bring the program from inception to prototype. Ultimately, the IPT – institutionalized throughout DoD in 1994 by Dr. Paul G. Kaminski [former Under Secretary of Defense for Acquisition & Technology] as an important Acquisition Reform strategy – was to form the very backbone of the AAAV Program.

Says Richard "Rich" Bayard, Assistant Program Manager, "Once General Dynamics Amphibious Systems was awarded the contract in June 1996, we began to staff the organization to its required levels over the next two or three

AAAV PROGRAM TIMELINE

First mission analysis – identified significant deficiencies in the
current Marine Corps amphibious vehicle. 1987

Submitted Mission Need Statement to look at possibility of
replacing current Marine Corps amphibious vehicle. 1988

Defense Acquisition Board Review and Defense Resources
Board Review resulted in a memorandum to the Marine
Corps, allowing the Service to proceed to concept explo-
ration phase . . . . .June 1988

Technology base intensified, resulting in the development of
important, basic technologies for high-speed amphibious
vehicles, operators, and maintainers .1988 to 1999

Cost and Operational Effectiveness Analysis put together from
13 different alternatives to current system (included not only
amphibious vehicles, but non-amphibious vehicles and non-
vehicle alternatives).

Contracts awarded to General Dynamics Land Systems and
United Defense, LP [formerly FMC Corporation], to develop
basic concepts for AAAV — Favorable recommendation
from Defense Acquisition Board . . . . .March 15, 1995

Request for Proposal (RFP) published 1995

Contract awarded to General Dynamics .June 1996

Government team members relocate to Woodbridge facility
alongside their industry counterparts. . . . . .Aug.-Sept. 1996

Requirements/Design Review . . . . .Sept.-Dec. 1996

Preliminary Design Review (Prototype) . . . . .December 1997

Critical Design Review (Prototype) . . . . .June 1998

First prototype assembled at Woodbridge facility . . . . .Dec. 1998-June 1999

rig. Gen. James M. "Jim" Feigley was promoted to his current rank and became the Commander, Marine Corps Systems Command, Quantico, Va., in August 1998. Prior to assuming command of MARCORSYSCOM, Feigley was promoted to the rank of colonel in 1993 and subsequently assigned as the Direct Reporting Program Manager, AAAV.

Feigley joined the Marine Corps' Platoon Leaders Class pre-commissioning program in December 1969 while an undergraduate student at the University of Wisconsin — Oshkosh. After receiving his Bachelor of Science degree in 1972, he was commissioned a second lieutenant and attended infantry officers training at The Basic School, Quantico, Va. Upon graduation in 1973, he was ordered to the 3rd Marine Division in Okinawa, Japan, and was assigned to the 1st Amphibian Tractor Battalion.

Soon thereafter, he deployed with Battalion Landing Team 1/9 to the Western Pacific as a Tracked Vehicle Platoon Commander. In 1974 he was promoted to first lieutenant and was ordered to the Marine Corps Recruit Depot, San Diego, Calif., where he served as a Recruit Series Commander and the Officer in Charge of the Physical Training Unit.

He was promoted to captain in 1977 and was subsequently ordered to attend the Amphibious Warfare School at Quantico, Va. Upon graduation in 1978, he was ordered to the 2nd Marine Division at Camp Lejeune, N.C., and was assigned to the 2nd Assault Amphibian Battalion. While there, he served as a Company Executive Officer, Company Commander, and Battalion Operations Officer, and deployed with Regimental Landing Teams Two and Eight for NATO exercises in Northern Europe and the Eastern Mediterranean.

In 1981 he was ordered for duty with the 3rd Marine Division in Okinawa, Japan, and assigned to the 1st Tracked Vehicle Battalion. There he served as a Company Commander and deployed with his unit to Korea for Joint Allied exercises. In 1982 he was promoted to major and ordered to the Naval Training Equipment Center, Orlando, Fla., as a Liaison Officer and later, the Project Manager for Marine Corps ground training and simulation equip-

ment. During his tour, he attended the Project Managers Development Course at the Army Logistics Management Center, Ft. Lee, Va.

Following his selection for career-level school in 1985, he attended the Marine Corps Command and Staff College in Quantico, Va. Upon graduation in 1986, he was ordered to Headquarters, U.S. Marine Corps, Washington, D.C., to serve as a project officer in the Weapons Branch, Office of the Deputy Chief of Staff for Installations and Logistics.

Following reorganization of Marine Corps development and procurement activities, he was assigned to the newly formed Marine Corps Research, Development and Acquisition Command, Washington, D.C., as a project officer in the Armored Combat Vehicle Directorate. During this tour of duty, he attended the Program Management Course at the Defense Systems Management College, Ft. Belvoir, Va.

Upon Marine Corps initiation in 1988 of a major defense program to replace the current fleet of assault vehicles, he was transferred first to the Naval Sea Systems Command, Washington, D.C., and subsequently to the Department of the Navy, Direct Reporting Program Manager, Advanced Amphibious Assault office for duty as the Assistant Program Manager. In August of 1989, he was promoted to the rank of lieutenant colonel.

His personal decorations include the Legion of Merit, Meritorious Service Medal with gold star, and the Navy Achievement Medal with gold star. Feigley is married to the former Peggy Pipia of Milwaukee, Wis.

months, both on the General Dynamics side and the government Program Management Office side, to tackle the work we had ahead of us, which was designing this very capable AAAV.

"We included a requirement," he adds, "for an integrated product team structure in our plans for the concept exploration and demonstration/validation... General Dynamics then developed their own 'Concept Board' against that requirement. The integrated product team concept that General Dynamics put forward matched Dr. Kaminski's notion of what it should be, which is a team of highly diverse individuals, all drawn from different disciplines within the organizations."

According to Bayard, the AAAV Program Management Office works with several IPTs that are individually led by General Dynamics Amphibious Systems employees (team members). Each team has engineers, logisticians, finance managers, and U.S. Marines. Team members also include representatives from the Defense Contract Management Command, as well as representatives of various subcontractors and the various technical disciplines related to building, operating, and fielding the AAAV.

Says Bayard, "It was two years into the contract that it took us to come up with a really good design for AAAV. That two years was filled with a lot of tremendous effort by engineers, logisticians, Marines, and acquisition professionals from both General Dynamics and government.

"We were doing analyses after analyses, trade-off study after trade-off study, trying to determine the best components and subsystems for AAAV, trying to determine what capabilities AAAV really should have in both lethality and survivability, and in land and water mobility — all those IPTs were working together toward the same common objective."

Feigley confirms that most of the decisions are made by IPT members. But on occasion, he shares "tie-breaker"

decisions with his industry counterpart, Michael D. "Mike" Bolon, Vice President of General Dynamics Amphibious Systems. Says Feigley, "We're really more (even though I dislike the word) 'facilitators' if you will."

He sees their role as more of "being there" when the need arises, for example, to redirect resources or apply different kinds of resources to a problem that an IPT in and of itself can't resolve.

"That's really our purpose," he explains. "To provide things, break the ties, and nudge people along, not to be the design czars or the all-knowing folks who design the vehicles." That task, he acknowledges, is very capably being handled by others at the Woodbridge facility.

Collocation Vital to Program Success

Once Feigley recommended and received approval to collocate, in June 1996 he headquartered his entire government team in the same facility occupied by the prime contractor, General Dynamics Amphibious Systems.[3] Called the AAAV Technology Center, this Woodbridge, Va., facility was up and running, with computer systems working, within 60 days after contract award.[4] Thus far, collocation has proven to be a smart move for several reasons:

- Dramatically reduces the amount of time it takes for the government and contractor to resolve design decisions.
- Enhances mutual understanding of the program manager's expectations, eliminating unnecessary effort.
- Reduces and changes the required number of deliverables and review processes.
- Allows concurrent approval by the government when the IPT finalizes a document.
- Greatly facilitates communications among team members. Team members identify and solve problems as they occur, and enjoy a reciprocal sharing of Marine Corps and corporate cultures, intellectual, and physical resources.

"The way we got to the Critical Design Review was quite a contrast from most programs that I'm familiar with. And it relates to the fact that while this is predominantly an engineering effort and the products are the products of the engineering staff, the program's success stems from the cooperation of all the disciplines, and in many cases the leadership of the business side."

Speaking of the collocation, Feigley acknowledges that it was somewhat of a collective idea based on the team's past experiences with managing programs.

"As the program manager, I put the idea forward and promoted it because it just made good sense. It was something that I think was a byproduct of our collective experience in doing it the old way where the government often had a contract with a defense contractor, or in a worst-case scenario, multiple contracts with multiple defense contractors."

He goes on to compare collocation with the way things used to be. "The old way would be to gather up a team every three to six months, fly to the contractor's facility, and then spend days there going through hundreds and hundreds of vugraphs; and once there, only then being made aware of problems that have, in some sense, been manifesting themselves for months; and finally, attempting to resolve those issues and provide the contractor with the kind of guidance or information needed to go forward and execute the contract."

Says Feigley, "My team has done that for years. General Dynamics' folks have done that for years. We were all in agreement that that wasn't an efficient or an effective way of doing business. And because there was nothing that said we couldn't do it...we thought we'd just jump right into it and give it a try."

Mike Bolon also weighs in on the importance of collocation.

"From General Dynamics' point of view, a big advantage as a contractor is that it enables every employee and subcontractor to have daily and direct participation with Marine Corps and government acquisition people, and leads to much greater depth of understanding with regard to the impact of all the day-to-day decisions over the whole life cycle of AAAV.

"Collocation is the most effective way to assure that daily eyeball-to-eyeball contact. People — either real users or representatives of government interests — have

really communicated as a result of collocation, anticipating problems before they happen, and when they inevitably do occur, quickly resolving them. That's the key outcome of collocation," Bolon concludes.

Rich Bayard summarizes the prevailing opinion on collocation in a few succinct words:

> "All our government folks came from managing other programs somewhere within the Department of Defense. And if you were to ask any one of them if they would go back to doing business in the old environment, they would say 'no way.' This is the only way to do business. IPTs and collocation are the best possible way to develop a weapons system for DoD."

Into the 21st Century

Bolon and Feigley speak unreservedly of their commitment to see the AAAV fielded. And both are quick to point out what AAAV will do for the warfighter over and above the current capability.

"Our [General Dynamics] view of the AAAV Program," says Bolon, "is that we're committed to making this a long-term partnership for many years to come. The immediate contract runs through 2001, but our goal is to help the Marines get AAAV into the fleet starting in the next century.

"What we're really trying to do with AAAV," he emphasizes, "is not only build a system that's effective and meets the military's need, but one that's affordable and can be operated and maintained throughout the entire 30-year expected service life of the vehicle."

Bolon states that General Dynamics views AAAV's capabilities as the platform for the future.

"Given the kind of defense picture that has emerged post-Cold War, along with the need to 'go anywhere, be effective when you get there, and get the job done the first time in,' AAAV is a perfect match," Bolon says, for such a flexible platform that can, essentially:

- Go anywhere at high speed.
- Get there protected against nuclear, biological, and chemical attack.
- Get there protected against medium-caliber, direct-fire weapons.
- Get there with sufficient firepower to be hard-hitting.
- Protect the infantry as they go out and do their mission.

Says Bolon, "We see this as a capability that will be better understood once it is deployed, and once deployed, will lead to offshoots, derivatives, and international interest. We're absolutely convinced that this is the platform for the next century."

Feigley also speaks of the increased capability AAAV will bring to the fleet, using this analogy as a fitting comparison:

> "We're at a point where aircraft were in the late 1940s when they transitioned from propeller aircraft to jet aircraft. The difference in capability is just that significant when compared to the amphibious vehicles we have today, and what AAAV will provide a few years from now."

Open Sea

"From a performance perspective, it [AAAV] brings a geometric increase in water speed," says Feigley. Extensive rigorous ocean testing of General Dynamics' hydrodynamic test rig has already demonstrated that AAAV can traverse the sea at speeds in excess of 25 knots. Its twin 23,000-plus-pound thrust water jets use a 2700 horsepower engine for seaborne operations.

On open seas, AAAV will also have the ability to travel 25 miles at sea plus 250 miles on land. Perfectly suited for coastal and riverine operations, it will have the ability (as mentioned at the beginning of this article) to change from land-based operations to sea, in less than *45 seconds.*

"Our goal," Feigley continues, "is to operate in the littorals, but operate in such a manner that we can use the ocean as a means to maneuver our forces and thereby avoid the kind of casualty-producing, attrition-style warfare that has unfortunately been associated with amphibious operations in the past. And this speed, this ability to negotiate what has historically been a physical barrier — the ocean — and turn it into a maneuver space, is a dramatic change and something that cannot be implemented fully until AAAV is fielded."

Adds Rich Bayard, "AAAV allows the Marine Corps to execute its 21st century doctrine of operational maneuver from the sea, specifically because of its high water speed capability, which no amphibious vehicle in the world's inventory has right now."

Land

On land, the AAAV is equally impressive. With a suspension made by Cadillac Gage, the AAAV will have all the mobility of the M1A2 battle tank. It will
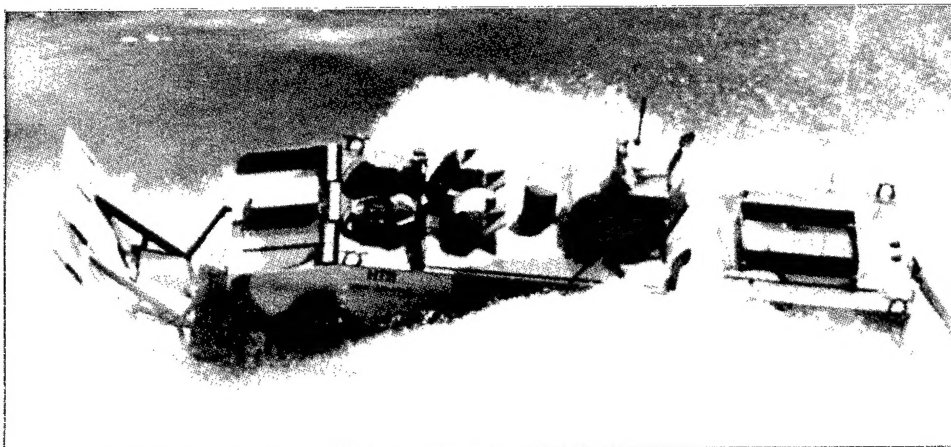
have the ability to overcome an eight-foot trench and three-foot-high vertical walls. On a flat top surface, it will top almost 45 mph. Carrying up to 400 gallons of fuel, it will run off jet petroleum or any grade of diesel.

In harsh conditions at the Army's Aberdeen Proving Ground, Md., the AAAV automotive test rig exceeded all of the Marine Corps' land mobility requirements.

Survivability

Despite its speed and maneuverability, the AAAV would not be combat effective without an armored hull. Feigley notes that there's a doubling of the armor protection level in the AAAV compared to the current system, which is another plus for protecting its valuable cargo – 17 fully combat-loaded Marine warfighters.

To provide the protection required for expeditionary warfare, the AAAV design incorporates tailored armor packages that effectively shield the vehicle against mines, defeat multiple projectile impacts, and minimize the effects of potentially lethal spall or splintering...all while offering a safer, easier ride. In fact, several features have been added to make the ride safer and easier.

- Climate control, which keeps the temperature inside the AAAV at 85 degrees on a 120-degree day.
- A nuclear, biological, and chemical warfare system that allows for full operation in a fully contaminated environment with the hatches closed.
- Automatic fire extinguishing system.
- Armor that can withstand 14.5mm armor piercing rounds at 300 meters, 155mm fragments at 15 meters, and stop anti-personnel mines.
- Passenger seat belts, allowing those inside to survive 360-degree rollovers.
- Capability to withstand up to five seconds of total submersion at sea.

State-of-the-Art Computer Technology

Computer technology is a big, big feature of the AAAV design – all told, more than one million lines of code. In spite of that advanced digital operating envi-

"We have always been very straightforward with Congress on what we've done well, areas where we have made mistakes, or areas where we had temporary setbacks. I think that's helped us in many ways. And Congress, in turn, has been supportive of AAAV."

ronment, AAAV remains easy to use. That same technology will also make the vehicle easier to troubleshoot, diagnose, and repair. Fault isolation computer technology and computerized technical repair manuals and records will make figuring out how to fix a problem easier.

According to Feigley, "Overall, from an operational perspective, it [AAAV] is easier to operate and maintain...truly a big

leap forward in combat vehicles from a technology and survivability perspective – an incredibly big jump."

Best-Value Prime Contractor

Feigley is candid about the government's choice of a prime contractor for the AAAV. "It was a best-value contract," he explains. "We were attempting to achieve a balance between cost and performance. There were a variety of different factors that were evaluated, such as our analysis of the risk of each contractor's technical approach.

"Another winning attribute, which I think was extremely important, was realism – the realism of each contractor's cost proposal compared to what they were actually intending to do in their technical proposal. And as it turned out," says Feigley, "not only did they [General Dynamics] have the most realistic proposal in our opinion, but they had the best technical approach at the lowest price."

Acquisition Reform and the AAAV Program

Feigley doesn't need much encouragement to talk about his team, their outstanding level of cooperation, and the work they've accomplished to date. And a large part of that work, he notes, has been done under the auspices of Acquisition Reform and all it embodies.

IPTs and IPPD

The AAAV Program Team is developing the vehicle completely under the concept of Integrated Product and Process Development (IPPD). Integrating experienced assault amphibian officers and staff noncommissioned officers in addition to the highly professional government engineering staff into all 28 of the program's IPTs, according to Feigley, provided for timely and thoughtful resolution of every engineering challenge, always with the Marine warfighter – the ultimate end user – in mind.

Says Feigley, "The way we got to the Critical Design Review was quite a contrast from most programs that I'm familiar with. And it relates to the fact that while this is predominantly an engineering

The Team Behind

WRENCHES DON'T COME MUCH BIGGER THAN THIS ONE. MARINE BRIG. GEN. JAMES "JIM" FEIGLEY PICTURED WITH THE AAAV ASSISTANT PROGRAM MANAGER, RICHARD "RICH" BAYARD, AT THE AAAV TECHNOLOGY CENTER IN WOODBRIDGE, VA.

SOMEONE HAS TO "COUNT THE BEANS" AND TAKE CARE OF BUYING. KATHLEEN FRANCIS, PICTURED HERE WITH FEIGLEY, IS THE AAAV DIRECTOR OF COST ESTIMATING AND PROCUREMENT.

THEY'RE NOT MARINES, BUT GENERAL DYNAMICS AMPHIBIOUS SYSTEMS (GDAMS) ALSO HAS A "FEW GOOD MEN" WORKING ON THE AAAV AT THE WOODBRIDGE TECHNOLOGY CENTER. PICTURED FROM LEFT: GREG LANZON, GDAMS IPT LEAD FOR PROJECT MANAGEMENT AND DIRECTOR, PROJECT MANAGEMENT/FINANCE; MIKE BOLON, VICE PRESIDENT, GDAMS; DAVID DUNN, GDAMS MANAGER, SUBCONTRACTS/MATERIEL.

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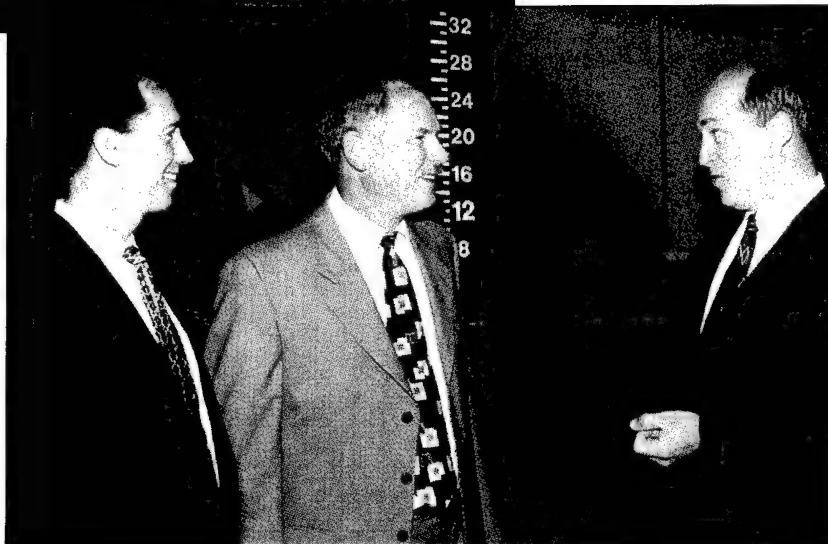
the Prototype

SOMEBODY HAS TO TAKE CARE OF THE NUTS, BOLTS, FUEL, AND SUPPLY PARTS THAT KEEP THE AAAV RUNNING. MARK DELMONICO (RIGHT) IS THE AAAV DIRECTOR OF LOGISTICS.

SOMEONE HAS TO BE THE "EYES AND EARS" FOR THE PROGRAM OFFICE AND TAKE CARE OF CONTRACT ADMINISTRATION. "COOKIE" HERDT, PICTURED HERE WITH FEIGLEY, IS THE DEFENSE CONTRACT MANAGEMENT COMMAND'S AAAV PROGRAM INTEGRATOR. (EDITOR'S NOTE: HERDT RETIRED FROM FEDERAL SERVICE IN OCTOBER 1998.)

AV

WHAT ARE THE CHANCES OF GETTING ON THE CALENDARS OF FOUR KEY MANAGERS AT THE SAME TIME FOR A PHOTO OP? PICTURED FROM LEFT: BAYARD; FEIGLEY; LANZON; DUNN.

effort and the products are the products of the engineering staff, the program's success stems from the cooperation of all the disciplines, and in many cases the leadership of the business side."

Cost As an Independent Variable (CAIV)

Kathleen Francis, the AAAV Director of Cost Estimating and Procurement, defines the CAIV process as a means of making performance and schedule a function of available resources and picking the right, affordable cost goal and sticking to it. Team members, she explains, use CAIV to develop, manage, and attain achievable cost objectives.

Francis notes that in addition to cost goals for the prime contract, General Dynamics Amphibious Systems (GDAMS) managers set cost goals for all their major subcontractors.

"On this particular program," says Francis, "subcontractors are approximately 50 percent of the cost. To validate cost goals established for the AAAV program, the Project Management IPT [GDAMS and government] performed Critical Production Cost Reviews [CPCR] at all major subcontractor locations. These CPCRs were designed to verify the methodologies and cost tools used to develop each subcontractor's unit production cost goal."

According to Francis, the IPT also looked at what it would cost the government in the future to produce the AAAV based on its current design.

"Our goal," she explains, "was to identify high-cost drivers, identify cost risk, and develop mitigation plans. We also asked each subcontractor to suggest cost-reduction initiatives; essentially, we encouraged them to suggest ways that will provide the government a quality product, while at the same time considering ways to cut costs.

"We did not want our subcontractors to look only at the near-term," says Francis. "We wanted to ensure that they don't do something now that would save us

money in the short run, but end up costing us a lot if we try to support it during the O&S [Operations and Support] phase of the program."

As a result of the CPCRs, Francis confirms that the IPT was able to get the unit cost down to "close to our program objective vice threshold." She's enthusiastic about the impact of the CPCRs.

"We considered this *phenomenal* because, generally speaking, early on in a program's life cycle, everyone is worried about where we are today, not where we will be in the future. Essentially, the process had been 'look at where we are today, worry about the next couple of years, and let the next 20 years take care of themselves.'"

David Dunn, GDAMS Manager, Subcontracts/Material, amplifies Francis' remarks on CAIV as an Acquisition Reform strategy. He refers to it as "more than a philosophy that we talk about in this program."

"It is, in fact," he asserts, "now embedded in all of the integrated processes that we have and the decision making that we do in this program. That is just part of the way we are trying to conduct business and make decisions."

Dunn also speaks of "thinking beyond the four walls of this facility to the far reaches of the United States and even across to Europe as well." In essence, he advocates extending the team's thinking and ideas for cost avoidances to include even geographically separated locations.

This, he believes, makes sense because at some point that farsighted thinking may, in fact, influence the decision making that's going on now at the Program Management Office level.

Says Dunn, "[CAIV is] allowing us to make decisions about what the vehicle system will have in its entirety in a way that hasn't really been done in the past...we're able to consider capability in the overall tradeoff process in a much more practical, meaningful way because

we have a good handle on what the cost is going to be."

Referring to CAIV as a very powerful and effective approach that has been taken to new heights within the AAAV Program, Dunn had this to say: "We're not going to have to, at the end of the day, throw capability off of the vehicle to fit inside an established price for the vehicle." That, he emphasizes, is the bottom line of CAIV's benefit to the AAAV Program.

Feigley fully supports the CAIV initiative as an important strategy to the program in terms of the gains being made on unit production cost and total life cycle cost. The AAAV IPTs have an unprecedented level of awareness regarding how every design decision affects unit and life cycle cost. As a result, CAIV-based trades, he confirms, have resulted in cost avoidances of over *$207 million in procurement* and *over $900 million in total life cycle costs.*

"Overall," says Feigley, "treating cost as an independent variable has positioned and freed team members to explore new, innovative, more cost-effective business practices. He also adds to Kathleen Francis' and David Dunn's comments on the benefits of CAIV with a simple, profound, personal observation:

> "There are some out there who believe that if cost is treated as an independent variable, somehow performance has to suffer. The Marines don't believe that. If you do it right and you're committed to it, you can do both. General Dynamics and the folks here at the Technology Center have proven that. We are in many cases exceeding our performance requirements at a lower price."

Streamlined Reviews/Oversight

The conduct of Design, Critical Design, and Defense Acquisition Board Reviews is another area Feigley cites as a far cry from reviews of the past. The review itself, Feigley explains, no longer, takes the form of a polished presentation. It is much more akin to an examination and discussion of actual work as it exists at that particular moment in the virtual

design database. It is not, Feigley maintains, a description *of* the products or assertions *about* the products.

"Every individual stands behind their work and presents it in its raw form, essentially, as it exists." The resulting dialogue, debate, criticism, and improvement from receiving first-hand information from those closest to the program, according to Feigley, clearly leads to increased understanding for not only the program team, but also those senior OSD executives charged with the program's oversight.

Rich Bayard maintains that the term "oversight," both by the Assistant Secretary of the Navy RD&A staff and the OSD staff, is almost a misnomer on the AAAV Program. "We have been very successful in integrating the OSD analysts and action officers into our integrated product team environment, in part because of our location (only 15 minutes from the Pentagon), but also because of the culture that we have encouraged and established."

Bayard goes on to explain that, basically the AAAV Program has an integrating IPT with membership from all the various disciplines within OSD. They meet periodically at the Woodbridge facility to *work* on the program, he emphasizes, not to *review* the program.

Underneath the integrating IPT, he adds, are a cost performance integrating IPT, a modeling and simulation IPT, a test and evaluation IPT, and other IPTs in the areas of logistics maintenance and management. Those "sub-IPTs" also have members drawn from OSD and are actively working with the AAAV IPT to develop the plans and documents required for program success.

Bayard confirms that the presence of IPT members from OSD certainly does make life easier.

"They bring a lot of lessons learned to the table," he says, "that we find very valuable; at the same time we avoid that old-fashioned 'throw the paper over the transom to the folks up in the Pentagon, let them review it, and throw it back'

"For now, the quality of the prototype and not only its performance, but its projected price is what we're locked into. If we can pull it off the way we feel that it's possible to — that will be our next reward."

mindset. We've completely eliminated that, and it's been a great benefit."

Program Funding
Feigley is grateful for the program's relatively stable funding and believes it is a result of several things. "First of all," he points out, "the priority that AAAV represents in the Marine Corps has been historically, is now, and will likely be in the future, the Marine Corps' No. 1 combat requirement."

He goes on to say that when you have something of such great need and priority within the Service itself, there tends to be less competition and less destabilization from an economic perspective.

"We have always been very straightforward with Congress," Feigley states, "on what we've done well, areas where we have made mistakes, or areas where we had temporary setbacks. I think that's helped us in many ways. And Congress, in turn, has been supportive of AAAV."

Mark Delmonico, the AAAV Director of Logistics, provides some insight into the AAAV Program's Operations and Support (O&S) costs.

"Our Operations and Support cost, the actual affordability to the Corps," he notes, "has been an issue we have been addressing from design inception. Every trade analysis that we've done or plan to do addresses the impact of the proposed design alternatives on O&S costs."

According to Delmonico, "We do not focus solely on the need to drive DTUPC [Design-to-Unit Production Cost] down, increase technological capability, or reduce a particular design risk without also considering the long-term effect on affordability. We have to balance all of these items from a systems perspective when designing AAAV."

Feigley says that from a comptroller's perspective, the AAAV Program Team has never asked for more than what they believed they needed in a given year.

"Our execution," he notes, "has always been on the mark. Therefore, the elements that tend to destabilize a program — whether it be action by Congress, action by the comptroller world internal to the Pentagon, or action by our own Service — those three key areas we've been able to deal with honestly and effectively."

Challenges and Lessons Learned
Feigley and the team acknowledge that they expected and experienced a few unique challenges along the way. They share their insights and highlight a few areas program managers may wish to give careful consideration.

Adjusting to an IPT Environment
"An IPT, Feigley says, "is a journey." It requires continuous training, testing, and adjusting for change. One lesson

that Feigley and the team have tried to share with other programs as they embark down this path is to make sure that team members are given a basic understanding and commensurate skills so that they can be successful in this very different, challenging environment.

All of the participants on an IPT have specific roles. But the role of the government, the role of the contractor, and the role of the subcontractor are all very different.

"[An IPT] is not a democracy," says Feigley, "and it's not meant as a group meeting. It is highly structured, highly disciplined, and produces products, and there are some very significant rules that have to be adhered to in order to make and keep it successful. I would certainly point that out to anybody thinking about these matters or contemplating an IPT structure for their program." That aspect needs to be taken very seriously, he cautions.

Collocation Means Relocation

Another challenge was accepting the fact that along with collocation comes, inevitably, relocation. Feigley, in his view, has been extremely fortunate in assembling a high-quality team. However, he acknowledges that it was a major, major effort and it took time to get the right people on-board.

"We've got to make sure we retain them," he emphasizes, "and we've got to make sure we have a satisfied workforce —because they are the AAAV Program."

Mike Bolon has first-hand knowledge and can attest to the workforce issues that prompt Feigley's emphasis on retaining a high-quality team. He readily admits the great demand for engineering talent throughout the Washington metropolitan area took him somewhat aback.

"We [General Dynamics] definitely underestimated the demanding effort that it took to draw the initial hiring.

"We moved from Michigan to Virginia," he continues, "into a new site, new lo-

cation, and new area. It took us a lot longer than we originally envisioned, even with help from some professional recruiters, not only from Detroit but from the Washington metropolitan area as well...it just took us a lot longer than we expected."

All told, according to Bolon, General Dynamics relocated 40 people to the Woodbridge, Va., facility.

Contract Administration and IPTs

Lois "Cookie" Herdt speaks of the challenges, as the DCMC AAAV Program Integrator, of providing the customer (in this case the AAAV Program Manager) contract administration services support in an IPT environment where the customer, procurement contracting officer, and DCMC are all collocated.

"Typically," says Herdt, "DCMC personnel are the eyes and ears for the program office and are located with or near the contractor. In this case, it's a first that we [DCMC Program Support Team] are located not only in the same facility with the contractor, but also with the program office.

"Some of the DCMC folks on the DCMC Program Support Team," she notes, "had not experienced working on IPTs. The program office has been very generous in providing IPT training and allowing each member of the DCMC Program Support Team the opportunity to participate in, and be a member of, an IPT."

[Herdt also points out that in some cases DCMC engineers serve on multiple IPTs.]

"Even though we're here, we [DCMC] have to maintain our independent analysis," she maintains. "The way of doing business is different than it's been in the past, simply because of collocation with the program office and being members of IPTs."

In some cases, this change in business practices has unexpected benefits. As an example, she cites how reporting processes have changed. DCMC normally does surveillance reporting and various program integration reporting. However, in keeping with the National Performance Review's initiative to reduce unneeded and unnecessary paper processes, the AAAV Program Manager contends that if the reporting results in no value-added, then the program doesn't need it, and the contract administrators shouldn't do it.

Since the DCMC employees working on the AAAV Program are collocated and members of IPTs, Herdt affirms that they are indeed part of the process, and are consistently given the opportunity to provide real-time insight. She notes that the AAAV Program Manager has also expressed the increasing importance of DCMC during integration and assembly of the vehicle and during production, and encourages DCMC team members to continuously look for the "value-added."
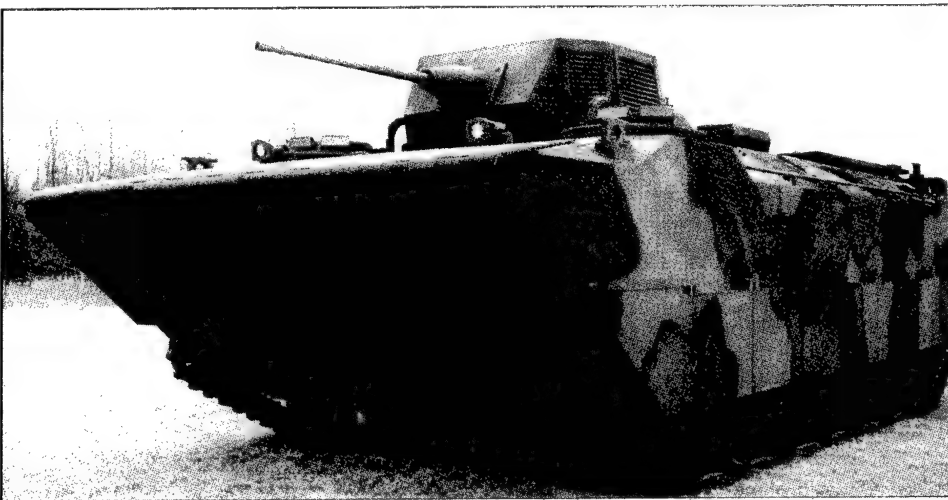
Herdt believes that, just as the DCMC employees in the Woodbridge facility have seen some changes, a number of other DCMC employees are going to notice some changes in the way DCMC will do business into the 21st century.

"We will have to strive for better ways of doing business," she concludes, "and in acquiring and integrating information that influences mission actions individually and as a team."

Logistical Awareness and Influence

Mark Delmonico refers to the importance of involving the logistics discipline in the early stages of program planning.

"For so long," he notes, "we've all been taught about the importance of logistics influence 'up front and early.' The integration of logisticians into all AAAV IPTs, either from an overall system supportability perspective, or from an accessibility or maintainability perspective, has been crucial to designing AAAV for supportability.

"Critical logistical questions are answered early — driving issues like, 'Are we going to organically maintain AAAV, or outsource? What problems drive manpower requirements in the Fleet Marine Force for today's Assault Amphibious Vehicle operators and maintainers, and how can we eliminate them in the AAAV's design?'

"Having that type of awareness and influence so early in the program," Delmonico maintains, "has allowed AAAV logisticians to make significant design contributions to lowering AAAV O&S costs."

He goes on to confirm that from his perspective as the AAAV Director of Logistics, the biggest impact on planning logistics aspects of the program was getting all the logisticians involved and working with the designers, and clearly getting them to understand the AAAV logistics interests and requirements.

"It's not just throw it over the transom to the logisticians, and you guys figure out how to maintain it." It's truly, according to Delmonico, getting the logis-

"AAAV's cross-country and water mobility are such that it can deliver tons of supplies under extreme physical circumstances where other kinds of conveyances just can't do the job. Whether it's carrying 5,000 pounds of Marines or 5,000 pounds of rice, AAAV is equally effective."

ticians involved in the process and seeing what they can do to influence the design now before any need for expensive modifications surfaces.

Subcontractor Integration and Training

David Dunn speaks of the team's deliberate strategy to cultivate and integrate

subcontractors into the AAAV Program "as if they were physically co-existing here with us at 991 Annapolis Way, Woodbridge, Va."

Dunn confirms that the team has made great strides in that regard, but at the same time, he acknowledges, "We recognize that there's a lot more that can be done. We have some limitations on tools that we want to work on and improve."

Leadership training, according to Dunn, is another dimension that the team wants to work on with respect to overseeing subcontractor performance within the context of an IPT environment.

"We recognize," Dunn says, "that IPTs in and of themselves don't answer all of the mail. There's a leadership aspect there that then gets extended beyond the four walls of this facility. And so even though we've made great progress, I think we have more work to do. We're interested in getting on with that work," he concludes, "and doing even more and better things in the future with subcontractors."

Leadership Brings Responsibility

Feigley actively practices the credo: "With leadership comes responsibility." Whether in a single-team organization or a whole team-based organization, Feigley is adamant that leaders owe their team members the authority and tools to enable them to be successful.

"You can't," says Feigley, "put the responsibility on them and then step back and let them rise (or fall) without the authority and means to get the job done."

He characterizes this attitude as a very different way of thinking about people in the organization.

"Unfortunately, he notes, "I've seen too many other examples where teams struggle, take risks, and are then blamed for their lack of success. That's certainly not the most effective way to do business."

With the advent of Acquisition Reform, DoD has empowered program managers to go out and take risks. Feigley insists

that when the AAAV Program Team members take those risks, they're fully equipped to *survive*.

Open Systems Architecture and the AAAV

The AAAV Program Team is committed to an Open Systems Architecture. David Dunn explains the team's Open Systems strategy.

"We have picked General Dynamics Amphibious Systems, at this point, as our principal supplier for the AAAV. We have as a goal —hopefully it's achievable —to enter in with them into a long-term relationship. However, we also believe that it's necessary to have a goodly amount of healthy competition from a cost perspective on the AAAV."

Dunn says that the team believes the way to achieve that healthy competition is at the subsystem and component level. He explains that if you have a design architecture that does not allow or is not flexible enough to readily change components or subsystems, or insert technology as it improves over time, or add the capability that previously was found to be unnecessary, yet a future threat requires it —if you have any or all of these, then you have an inflexible design architecture, which is pretty much a losing proposition across the board.

"Too many weapon systems that we've built in the past," Dunn notes, "have been inflexible and, therefore, it's been very expensive either to maintain or to improve them in the future...We wanted to get away from that so that we could introduce competition at a lower level than the system level and to allow the evolution of the system over time from a technology and performance perspective."

Feigley also applauds the aviation community's success with Open Systems Architecture.

Successes and Recognition

The AAAV Program Team has received numerous awards and honors for their success thus far in bringing the vehicle to prototype. To name a few:
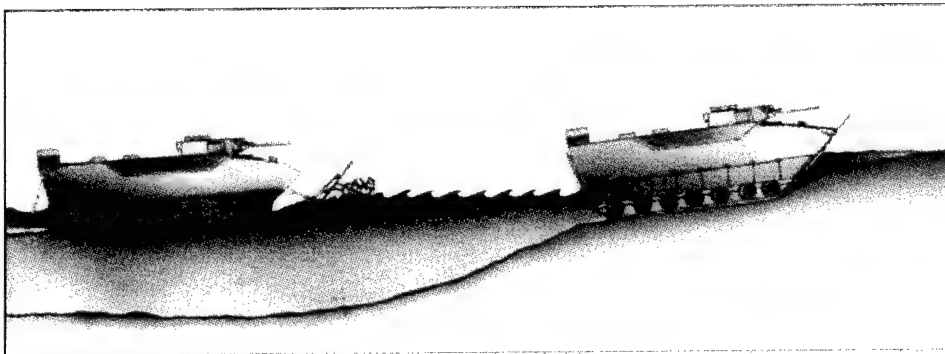
- The 1996 Stratospheric Ozone Protection Award from the Environmental Protection Agency
- The 1996 and 1997 Department of the Navy Environmental Security Award
- The 1996 and 1997 Department of Defense Environmental Security Award
- The 1997 David Packard Award for Excellence in Acquisition
- The 1997 Secretary of Defense Superior Management Award
- The 1998 Department of Defense Value Engineering Honorary Achievement Award

When asked why the program has been so successful, Mike Bolon has a one-word answer: *planning*.

"From my perspective, planning has been such an essential ingredient throughout this whole process...The vision of the Marine Corps strategically has been well communicated, and following contract award we [General Dynamics] were able to get into some rather meticulous planning, frankly, above and beyond the kind of planning General Dynamics has historically been accustomed to."

Now, 26 months after contract award, Bolon confirms the entire team's appreciation and recognition of detailed planning as an essential value-added in terms of being able to execute the contract.

"Planning," he concludes, "has been key to some of our success and our ability to measure where we are day-to-day and anticipate some of the problems before they become meaningful."

Bolon confirms that not only was there a common understanding among team members of the Marine Corps' vision, but also a common goal.

"I believe that everybody in this building has the common goal of fielding one of the best combat systems the Marine Corps has ever seen," says Bolon.

"Historically," he continues, "engineers that work in their cubicles or logisticians that work in their cubicles are more concerned about their product, their document, their subsystem, and are not necessarily focused on that end item of fielding the total system for the Marine Corps."

The AAAV Program Team, according to Bolon, has reversed that trend.

"Here [Woodbridge facility], the IPT process and the collocation has made everybody acutely aware of how important this system is to the Marine Corps and to national security. And so together, everybody is working toward that same end. And that energy," Bolon concludes, "and that objective creates success...It really does!"

Greg Lanzon, GDAMS IPT Lead for Project Management and Director, Project Management/Finance, believes that the success of the program is the result of four key attributes.

"First is empowerment of the IPTs, says Lanzon. "We gave them budgets; we gave them resources; we gave them tools; and we said, 'design, build, and test the vehicle within the confines of these rules.'

"Second is decision making." According to Lanzon, the impact of IPT structure and collocation has reduced the amount

of time required to make decisions. "Normally," he points out, "decisions are made within two weeks, which is much quicker than on other projects that I have worked on.

"Third is the team's risk management process." Lanzon states unequivocally that "We have a risk management process that is unparalleled *anywhere on any program.*

"Fourth is the integration of the business team within the Product IPTs."

Lanzon relates that in February and March 1998, the vehicle weight and unit production costs were growing. To reduce weight and cost, the business team designed a contest called 50/50. Basically, teams were awarded $50 for every pound in savings and/or $250 reduction in unit production cost. The award was based on net reductions to avoid paying for weight savings if the savings resulted in a unit production cost increase. And it worked – the program achieved a 1500-lb. weight savings and $100K savings off the unit production cost.

Finally, Lanzon says that in addition to the four attributes cited, strong leadership and commitment have an extremely important effect on program success. Mentioning those leaders by name, he had this to say:

"Leadership begins at the top. Both General Feigley and Mike Bolon are very effective leaders, and they are committed to the success of this program. They are here. They are not traveling. They are not working some other agenda. They are here, living and breathing the program on a daily basis. They're working the decisions, the challenges, and the risks."

"[AAAV] provides the kind of mobility that any military force needs, whether it's in high-intensity operations or even in non-combatant evacuations or operations other than war."
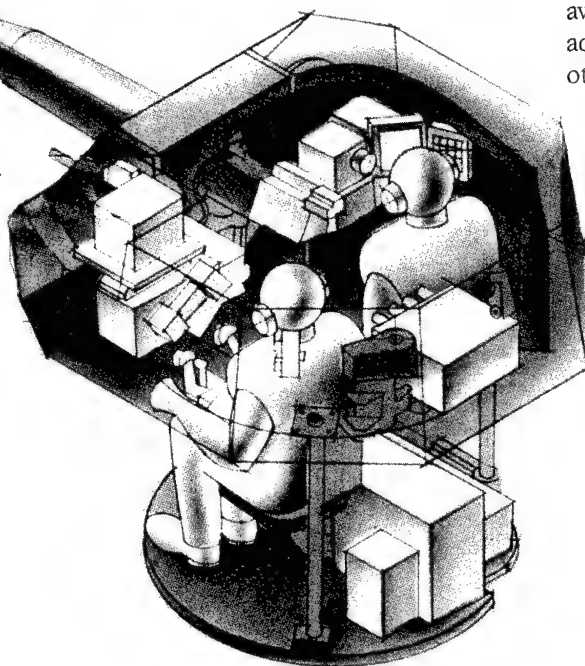
As program manager and leader of this very capable team of acquisition professionals, Feigley boils their success down to this:

"The [Woodbridge] team has been very successful and has deserved all of the awards they've received. They are going to continue to work hard and hopefully there'll be a few more for them in the future."

Those awards, he notes, however wonderful, are past accomplishments, and he prefers to concentrate on the work to be done now, but with an eye toward the future and the next challenge.

"For now," says Feigley, "the quality of the prototype and not only its performance, but its projected price, is what we're locked into. If we can pull it off the way we feel that it's possible to – that will be our next reward."

Future Applications

The United States is constantly in a state of building weapons they hope they will never have to use.

Says Feigley, "The ultimate application of any weapon is always a human tragedy, and it's something that hopefully we can avoid. But if the situation requires it," he adds, "I would not want to be on the other end of AAAV. Our enemies will fear the presence of this machine. I think that's probably the best thing I can say about its capabilities."

Feigley and the entire team believe the AAAV will be not only used, but also used extensively. And not necessarily as a weapon of war in a major conflict.

AAAV, Feigley explains, is highly versatile. Wherever there's trouble, he believes AAAV will be where it counts. Whether it's extracting hostages or rescuing people in hurricanes, AAAV will be capable of fulfilling roles other than combat.

Mike Bolon relates a little known, but interesting fact about the first amphibious vehicle. Originally, the vehicle was designed as a means to rescue people during hurricanes in Florida back in the 1930s. It was not until 1940 that the Marines saw the potential of its military application as the first real amphibious vehicle.

Feigley adds a more in-depth description of AAAV's versatility. "The AAAV is not just designed for conducting

amphibious operations under combat conditions, of which it is ideally suited, but it also provides the kind of mobility that any military force needs, whether it's in high-intensity operations or even in non-combatant evacuations or operations other than war."

In places like Somalia or other nations, Feigley notes that AAAV will give any military force the mobility to transport general supplies, medical supplies, food, or life-saving equipment across terrain that is often very poor as it relates to lines of communication.

Says Feigley, "AAAV's cross-country and water mobility are such, that it can deliver tons of supplies under extreme physical circumstances where other kinds of conveyances just can't do the job. Whether it's carrying 5,000 pounds of Marines or 5,000 pounds of rice, AAAV is equally effective," according to Feigley. He is confident that even though the mission may change, AAAV's continued applicability and need will remain.

Prototype in the Making
Feigley speaks with pride and enthusiasm about the first AAAV prototype. Currently, the Woodbridge facility houses several modeling and simulation tools — models and simulations that the AAAV engineers and logisticians have used over the past couple of years in designing the prototype.

And now, according to Feigley, "Those same engineers and logisticians are going to be participating in the assembly and fabrication of three prototypes here in the [Woodbridge] facility, starting in December 1998."

Rich Bayard explains that the first prototype is planned to undergo some shakedown testing by the contractor, followed by Roll-Out in August of 1999. And the second prototype, he explains, will follow two months behind that, with the third prototype two months behind the second prototype.

"From there," Bayard continues, "we'll go on to a December 1999/January 2000 time frame, when the government will take the prototypes and head off to the various test facilities in Maryland, California, and Florida to test the AAAV prototypes against all of the requirements that the Marine Corps has laid out for them."

And following successful testing, Bayard states that the program will come up for its next milestone Defense Acquisition Board Review (now scheduled for January of 2001 at the Pentagon). At that time, the team will present AAAV's successful testing results to the Defense Acquisition Board, which has the authority to grant permission for the program to move forward to the next phase.

One Last Word
In one respect, Feigley is a "victim" of his own success. Holding the rank of colonel throughout the duration of his tenure as AAAV Direct Reporting Program Manager, in August 1998 the Marine Corps promoted him to the rank of brigadier general. He has indeed become one of the distinct minority of "Proud But Few" Marines who ultimately attain the rank of flag officer. But that promotion came at a price.

On August 6, 1998, he relinquished control of the program he so capably led, said good-bye to his team, and welcomed his successor, Marine Col. Blake J. Robertson.[5] Feigley now serves as the Commander, Marine Corps Systems Command (MARCORSYSCOM), at Quantico Marine Base — a position for which he is eminently qualified.

Before he left to assume his new duties, *Program Manager* invited him to convey any personal words he might like to leave his team members and the acquisition workforce at large, based on his experiences with the AAAV Program.

His response reveals a side of the man and his character the Marine Corps saw years ago as they promoted him through the ranks, all the way from second lieutenant to general officer: *He values people and they, in turn, value him.*

> "If I had to say one thing that particularly stands out in my experiences here and throughout the five years I've been associated with this program and others, it would be that defense acquisition has always been, is now, and I believe will remain in the future, principally a human endeavor. And while we can create a lot of processes, use a lot of tools by which to improve and speed up our work, all the important things sooner or later come down to people, their intellectual abilities, and their capability to work with other people. Those out there who think that it's otherwise have something to learn."

ENDNOTES

1. Feigley notes that the Marine Corps analyzes new requirements using a process called a concept-based requirements system. The user representative for that system is the Marine Corps Combat Development Command at Quantico, Va.

2. As one of only three Direct Reporting Program Managers throughout the Department of Navy, "Direct Reporting" simply means that Feigley reported directly to the Assistant Secretary of the Navy for Research, Development, and Acquisition.

3. General Dynamics Amphibious Systems, once awarded the AAAV contract, purchased the Woodbridge, Va., facility and moved into the building in 1996. They had the building configured specifically to accommodate the integrated product team environment.

4. Twenty companies from around the nation have joined forces in support of the project to incorporate new ideas in communications, logistics, and command and control to provide upgrades in intelligence, weaponry, and engineering with the goal of producing the best possible amphibious assault vehicle.

5. Marine Col. Blake J. Robertson assumed duties as the AAAV Direct Reporting Program Manager on Aug. 6, 1998.

Designing Digital Defenses

LINDA D. KOZARYN

BRUSSELS, Belgium – Defense experts are gearing up to face a new danger threatening America and its allies – cyberattacks.

The advent of the computer-based Information Age has opened the door to unconventional attacks since almost every aspect of modern life has become increasingly dependent on computers. Telecommunications, government operations, banking and finance, transportation, air traffic control, water supply systems, medical, police, fire and rescue – all are vulnerable to attack.

By the year 2000, experts predict one million networks will be connected to the Internet. About 350 million computers will have E-mail access. Nearly 20 trillion bits of data are now transmitted monthly, and this figure is doubling annually.

All it might take to disrupt the nation's power grids and other critical infrastructure are a home computer, a telephone line, digital dexterity, and a double dose of moxie. Right now, computer hackers are poking and prodding, trying to gain unauthorized access to national and private systems.

Recently, for example, two computer-wise California teen-agers succeeded in breaching an unclassified Pentagon defense network. Security experts believe critical systems could well become the targets of more than inquisitive children.

Terrorists, criminals, disgruntled employees, and even rogue states could launch much more serious cyberattacks. Rather than confront the United States or its allies on the battlefield, future foes may attack nations' infrastructures. DoD alone has about 2.1 million computers, 10,000 local area networks, and more than 100 long-distance networks.

"There are no borders in cyberspace," Deputy Defense Secretary John Hamre declared at a NATO conference in Vienna in June. "It is absolutely imperative that we prepare now to protect these systems."

Last year, DoD conducted Eligible Receiver, an exercise to determine U.S. vulnerability to computer attacks, Hamre told about 250 NATO and Partnership for Peace members attending the 15th NATO Workshop.

"We selected a small group of employees – 35 individuals," Hamre explained. "We gave them funds to buy computers from local stores. They were only allowed to use off-the-shelf software or software they could download from the Internet. They were given three months to find out if they could disrupt the infrastructure of the United States."

The results were startling, Hamre said. "We didn't let them take down the power system of the United States, but they could have done it." Defense officials learned it only requires modest know-how to seriously disrupt vital services like power distribution and telecommunications, he said.

"A small handful of capable computer specialists – a capability well within the reach of even moderately developed countries – using off-the-shelf technology and equipment, can now wage war against the largest country in the world," he said.

Hence, the United States is taking steps to protect its infrastructure. A presidential mandate calls for a plan to implement information assurance measures. It includes creating lead agencies to coordinate with private companies, and setting up a new national infrastructure protection center. The plan designates a coordinator for infrastructure protection on the National Security Council. Government officials are also setting up a national warning and analysis center and increasing funding for information assurance fivefold, Hamre said.

"This is a pressing problem because you can't solve it by yourself," Hamre said. "The Defense Department cannot solve this problem because we don't own the systems that are likely to be attacked. We have to develop partnerships with the private sector to get them to fix this problem."

Cooperation among NATO allies and partners is also vitally important, he said. "With this increasingly 'Interneted' world, we cannot accept vulnerabilities in our allies," he said. "The weakest link in the chain becomes the broken chain for us all."

Editor's Note: This information is in the public domain at **http://www.defenselink.mil/news/** on the Internet.

Army TACMS-BAT Project Office

JEAN A. GROTOPHORST

Occasionally, the U.S. Army produces a bona fide Cinderella Story, and the Army Tactical Missile System – Brilliant Anti-Armor Submunition (Army TACMS-BAT) Project Office has created a real winner at Redstone Arsenal, Ala.

In conjunction with Lockheed-Martin Vought Systems Corporation and Northrop Grumman Corporation, the Army TACMS-BAT Project Team, by implementing several of the basic principles and tenets of Acquisition Reform, is empowering team members, accelerating missile production and delivery, and exceeding all program expectations.

The foundation of the project office's success is its personnel. Staffed with both core and matrix acquisition professionals, the project office's matrix support personnel (engineers, logisticians, and technical support) come from the U.S. Army Aviation and Missile Command (AMCOM) at Redstone Arsenal.

Army Col. R. Kelley Griswold leads this successful team as the Project Manager, and Donald C. Barker is the Deputy Project Manager. Both Griswold and Barker attribute the project's stellar success to the cooperation, dedication, and teamwork of the people they work with every day.

The Two Become One

On April 12, 1994, the Army formally joined two offices, Army TACMS and BAT, to create the Army TACMS-BAT Project Office. Headed by a core staff of pro-

gram and financial management personnel who manage two Acquisition Category I (ACAT I) programs totaling in excess of $7 billion, the newly formed project office became the Army TACMS-BAT Project Office.

Systems managed by the ATACMS-BAT Project Office are the Army TACMS Block I, Block IA, Block II, BAT and P3I BAT programs, along with an Army TACMS Foreign Military Sales (FMS) variant. Future systems such as the Army TACMS Block IIA and Block III Earth Penetrator, along with a Navy version are also under the direction of the Army TACMS-BAT Project Office.

Lockheed Martin Vought Systems Corporation (Vought Systems), headquartered in Dallas, Texas, is the prime contractor for the Army TACMS systems; and Northrop Grumman Corporation, headquartered in Rolling Meadows, Ill., is the prime contractor for BAT and P3I BAT.

Army TACMS Block I

The Army TACMS Block I is a surface-to-surface, inertially guided, semi-ballistic missile fired from the M270, Multiple Launch Rocket System (MLRS) launcher family. It comes packaged one missile per launch pod/container, with a payload of approximately 950 M-74 anti-personnel, anti-materiel bomblets that produce 750,000 fragments from a single missile payload.

The missile can fly approximately 165 km. This means that key enemy com-

mand posts, air defense sites, staging areas, or logistical sites will be easy targets for this deadly munition. The Block I missile can engage targets throughout the corps area of influence.

From the first low rate initial production delivery in September 1990 until the final delivery in July of 1997, Vought Systems delivered each of the 1,647 Block I production missiles on or ahead of schedule. In fact, the production schedule was significantly accelerated to produce 105 missiles to support Operation Desert Storm, where it was devastatingly effective in silencing or destroying every target it engaged.

Army TACMS Block IA

The Army TACMS Block IA is an extended range variant of the Army TACMS Block I missile. The Block IA effort entails integrating an onboard global positioning system (GPS) into an inertial navigation system and reducing the payload to approximately 300 M-74 bomblets to achieve the required accuracy (a factor of 3 better than Block I) and extended range of approximately 300 km.

Today, Vought Systems continues to deliver the Army TACMS Block IA missiles far ahead of the scheduled delivery dates, and the program achieved "first unit equipped" to the Eighth U.S. Army ahead of schedule.

What About Maintenance?

The Army TACMS maintenance facilities, both within and outside the continental

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Grotophorst is a General Engineer in the System Engineering Division, Army Tactical Missile System — Brilliant Anti-Armor Submunition (Army TACMS-BAT) Project Office, Program Executive Office for Tactical Missiles, Redstone Arsenal, Ala. An Army Acquisition Corps Competitive Development Group member, Grotophorst started a developmental assignment in the Aircrew Integrated Systems Project Office, PEO Aviation, in October 1998.

United States, are fully capable of servicing both Block I and Block IA variants. In addition, missile reliability in both missiles has exceeded requirements by an additional 14 percent and seven percent respectively. Just recently, the Army successfully launched an Army TACMS Block I missile taken from stockpile, from a High Mobility Artillery Rocket Systems Launcher.

Army TACMS Block II

The next evolution of the missile, the Army TACMS Block II variation, began as an innovative solicitation package where Acquisition Reform, specifically Military Standards and Specifications Reform, was fully realized.

The solicitation featured a brief yet concise statement of work and weapon system performance expectations without military specifications and standards. The instructions to the contractors required that they focus their proposals on specific areas: program management, integrated product and process development, software development, system safety, and test and integrated support in terms of the processes, controls, and metrics they would use.

In a November 1994 memorandum to Gilbert F. Decker, Assistant Secretary of the Army (Research, Development, and Acquisition), Dr. Kenneth J. Oscar (Principal Deputy for Acquisition) stated, "This is a landmark solicitation for the missile community. We intend to use it as an example of a masterful application of the Army's Acquisition Streamlining and Military Specifications/Standards Reform initiatives."

BAT Submunition

The Army TACMS Block II missile carries 13 BAT submunitions to kill moving armored targets out to a range of approximately 140 km. A later evolution of the BAT, the P3I BAT, will kill moving or stationary, hard or soft targets to the same range.

The BAT submunition delivered by the Army TACMS missile is an unpowered, aerodynamically stable submunition that uses two types of sensors: acoustic for

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>
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> Principal DeputyAssistant Secretary of the Army (Research, Development & Acquisition)
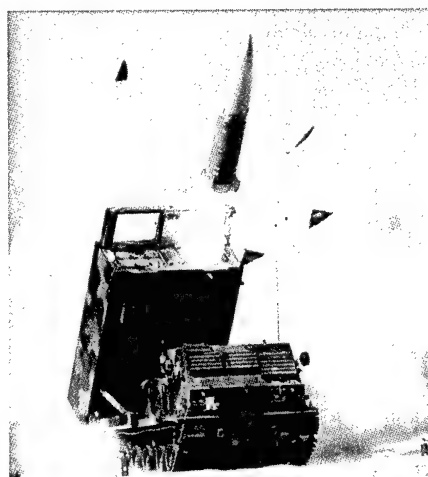
MULTIPLE LAUNCH ROCKET SYSTEM (MLRS)
FIRING AN ARMY TACMS GUIDED MISSILE.
Photo courtesy Lockheed Martin

acquisition and infrared for terminal attack. The BAT has an extremely large target acquisition footprint. After dispense, the submunition autonomously seeks and destroys moving armored combat vehicles.

Northrop Grumman successfully completed a grueling contractor development flight test series with BAT. The formal qualification tests for the BAT Central Electronics Unit Operational Program and the Initial Production Readiness Reviews were also successful. Integrating the BAT into the Army TACMS Block II missile, the Army TACMS-BAT team achieved such great success in their engineering development testing and two of their pre-production tests (PPT) that the remaining PPT was foregone.

During the Block II PPT flights, 100 percent of all dispensed BATs achieved target hits, and the system achieved its required reliability, enabling Block II and BAT to begin production qualification testing (PQT). To date, three of five PQT flights are scheduled for November and December 1998.

The project office also successfully dispensed two BAT simulants from an MLRS rocket, proving that BAT is a viable option for the Army's MLRS smart tactical rocket (MSTAR) program.

P3I Improvement to BAT

P3I BAT is an improvement to the BAT submunition that retains the basic physical characteristics of BAT while offering an enhanced acquisition capability and an improved warhead. Each P3I BAT is a self-guided submunition that uses imaging infrared, millimeter-wave, and acoustic sensors to autonomously locate and individually attack and destroy both moving and stationary targets. The enhanced dual mode seeker will also ensure the P3I BAT is more robust in adverse weather and against countermeasures.

The P3I BAT Program also has been off to a fast start with the extremely successful captive flight test No. 2 in the heart of winter in Grayling, Mich. The integration and demonstration of P3I

- DELIVERIES COMPLETE 7/98
- CARRIES 950 M74s
- FIELDED 1990
- INERTIAL GUIDANCE (MGS)
- EMPLOYED DURING DESERT STORM
- RANGE   MIN: 25 KM
                    MAX:165 KM

- CARRIES 300 M74s
- FUE FY98
- GPS AIDED INERTIAL GUIDANCE (IMGS)
- RANGE   MIN: 70 KM
                    MAX: 300 KM

- CARRIES 13 BATs OR P3I BATs
- FUE FY01 (BAT)
- IMGS – II
- RANGE   MIN: 35 KM
                    MAX: 140 KM

BAT
- DUAL SENSOR (ACOUSTIC & IR)

- CARRIES 6 P3I BATs
- FUE FY05
- IMGS – II
- RANGE   MIN: 100 KM
                    MAX: 300 KM

P3I BAT
- MULTI-SENSOR (MMW/I2R/ACOUSTIC)
- WARHEAD UPGRADE

- DEEPLY BURIED HARD TARGETS
- LEVERAGE OFF TACMS PENETRATOR DEMO
- R&D START FY05
- PRODUCTION START FY09

BAT hardware-in-the-loop, infrared-only capability was completed six weeks ahead of schedule.

Budgeting shortfalls have slowed the progress of the P3I BAT program to incorporate pre-planned improvement over a longer period of time and more incrementally. The Army TACMS-BAT team will place a greater emphasis on economical and performance capabilities as milestone decisions are determined.

Army TACMS Block IIA
The Army TACMS Block IIA missile is an extended range variant of the Block II system. The Block IIA program modifies the payload section of the Block II missile to carry and dispense six P3I

BAT submunitions out to a range of approximately 300 km.

Add Navy to the Mix
The Army TACMS-BAT Project Office has been working with the Navy to integrate the current Block IA missile configuration, with minimal modifications, to be suitable for both submarine and surface combatant applications. The project office, in conjunction with the Navy, conducted a successful launch from an MK 41 Vertical Launch System cell in November 1996.

Earth Penetrator Demonstration
To further strengthen the cooperative efforts between the Army TACMS-BAT Project Office and the Navy, the project

office is currently working on a demonstration program with the Navy's Strategic Systems Program Office to demonstrate a prototype earth penetrator.

Army TACMS Block III
The Army TACMS-BAT Block III earth penetrator program will build from the knowledge gained in the earth penetrator demonstration. Block III will develop an Army TACMS missile variant optimized or the Army user's requirement for an M270 launched earth penetrating weapon. The missile will deliver a conventional earth penetrator that will attack and destroy hard and deeply buried targets to a range in excess of 450 km. Block III will also be adaptable for Naval submarine and surface combatant applications.

All three programs will meet the challenge of the changing warfare roles and the evolving force/weapons structures within the DoD as well as support a joint vision requirement.

People —
The Primary Equation
Clearly, the significant record of success compiled by the Army TACMS-BAT Project Office would be impossible without the skills and dedication of its people. Empowerment to do the right thing, for the customer and for the organization, is the business norm. Management fosters an environment such that each employee is provided the opportunity to excel. This is evident in the individual successes of project office personnel.

Two of the last three project managers were honored by the Secretary of the Army as the project manager of the year for excellence and project office of the year.

Four employees (including one civilian) were competitively board selected for other project manager positions, and three employees were selected for participation in the Army Acquisition Corps Competitive Development Group.

Awards bestowed upon individual members of the Army TACMS-BAT Project

Office include the Outstanding Employee with a Disability Achievement in Value Engineering; The Exceptional Civilian Service Award (highest possible award given); The Meritorious Civilian Service Award; Logistician of the Year; and numerous other awards and citations.

In addition, members of the Army TACMS-BAT Project Office staff were selected to attend the Massachusetts Institute of Technology Sloan School of Management, Management Technology Program; Vanderbilt Executive MBA program; Texas Senior Service College Fellowship Program; and the Advanced Program Management Course at the Defense Systems Management College.

The project office itself has also received four Army Materiel Command (AMC) Value Engineering Achievement awards and Army Missile Command awards for achievement in value engineering every year since 1991. Total project office value engineering savings are in excess of $90 million.

The Vought Systems Army TACMS Block II Team was recently selected to receive the Lockheed Martin Corporation 1998 NOVA award. Every year, Lockheed Martin Corporation recognizes only 50 individuals and/or teams from their approximately 170,000 employees for their contribution in technical excellence, leadership, exceptional service, and teamwork.

In every instance, Army TACMS-BAT team members met the challenges and changes in an era of acquisition streamlining and shrinking defense dollars. Numerous congressional staffers and Department of the Army staff members noted the project office's success in innovative program planning, despite externally imposed budgeting challenges.

Perhaps the most revealing indicator of the project office's success is its reputation for cooperative teamwork in a highly professional environment. Personnel within and outside the AMCOM community are seeking to join the project office team, while other organizations welcome former Army TACMS-BAT personnel to their staffs. As a familiar adage reminds us, "It's not the job, it's the people."

Our Mission is Success

The Army TACMS-BAT Project Office is an excellent example of success in project management. Production deliveries that are ahead of schedule, reduced developmental phase flight testing, reliability requirements that are exceeded, and combat-proven capabilities — all are the results of empowerment, teamwork, and implementation of Acquisition Reform business practices and processes.

Army TACMS-BAT personnel, however, are merely the underlying factor for the project's success. Joint Service programs, Foreign Military Sales customers, the prime contractors, the subcontractors, and other support personnel are all part of the many successes achieved by the Army TACMS-BAT Project Office.

Through leadership, innovation, teamwork and ownership, management uses its limited resources to achieve maximum program success. But teamwork, undeniably, stands out as the critical catalyst for program success — government and industry working as a team to achieve the milestones necessary for successful design, development, production and sustainment of multi missile systems.

Ultimately, individual successes give way to total team success. And in the final analysis, isn't that the way it should be?

avy Rear Adm. "Lenn" Vincent, DSMC Commandant, hosted two French acquisition professionals at the DSMC main campus, Fort Belvoir, Va., Oct 26-27: Ingenieru General De L'Armement Jacques Pechamat, Deputy Commandant, French Acquisition Corps, Delegation Generale pour L'Armement (DGA); and Dr. Gertrud Humily, Executive Director, International Education, DGA.

Both were visiting DSMC to prepare for the International Defense Educational Arrangement (IDEA) '99 Seminar to be held at DSMC in July 1999. As part of their visit, they also reviewed the ongoing research project on Comparative Acquisition and exchanged educational ideas for the acquisition workforce. Pictured from left: Pechamat; Humily; Vincent.

Success Means Going Out of Business, Houley Says

RUDI WILLIAMS

ASHINGTON — Shrinking defense dollars. Aging warfighting equipment. Increasing maintenance costs. Miles of bureaucratic paperwork. These and a host of other problems are the propellers driving Defense Reform Initiative efforts, said William P. "Bill" Houley.

He has been on the job since mid-May as director of the newly created Defense Reform Initiative Office. Houley, who reports to Secretary of Defense William Cohen through Deputy Secretary John Hamre, has inherited something he says is simple to describe, but not simple to do.

Hamre has been DoD's point man on the reform initiative since its start in November 1997 and has regularly emphasized the initiative's four pillars:

- Re-engineer by adopting the best private-sector business practices in defense support activities.

- Consolidate and streamline organizations to remove redundancy and move program management out of corporate headquarters and back to the field.

- Compete many more functions now being performed in-house, which will improve quality, cut costs, and make the Department more responsive.

- Eliminate excess infrastructure.

Based on the initiative's pillars, Hamre has issued 44 directives. Now DoD will have a full-time director in Houley to devote to the reform initiative.

For starters, the retired Navy rear admiral sees two major objectives. "One," he said, "is to try to bring much better business practices into the Department of Defense."

About two decades ago, U.S. industry was concerned about being left behind in the international marketplace. U.S. industry reinvented itself and regained global leadership. But, Houley said, DoD didn't keep pace — for many reasons, including that its principal mission is readiness, not business.

Houley said the new Joint Electronic Commerce Program Office exemplifies the business practice used by private industry's best in doing business in real time without the complicated layers and separate offices so common in government business processes. In early June, Cohen said the DRI office is where miles of paperwork are going to stop. The secretary noted electronic commerce is a step in DoD's efforts to do business better, faster, and cheaper.

"We'd like to expand similar initiatives to allow us to do more things from our desks and fewer things by running pieces of paper around the world," Houley said.

"Most defense organizations — whether [we're talking about] tests, education, procurement, writing of contracts, using a credit card to buy things from your desk — are related in the sense we want to do [those things] electronically — in real time and in far fewer steps," Houley said.

"It's actually one of a series of steps," he said. "In order to be consistent with the rest of the world, we need to have good information and be able to use it in a real-time basis. A lot of systems we have now are days and even weeks behind in terms of being able to use the information.

"We have a lot of processes where we march contracts from Office A to Office B, fill out a procurement request, then we go through a long process that nobody wants to hear about," he said. "We should be able to do it from a keyboard, with a lot fewer steps and in a lot less time."

Houley finds general agreement and lack of controversy on the first objective of engaging better business practices. Getting it done is the difficult part.

This leads him to the second objective: finding the money to meet warfighters' needs. Defense dollars are not expected to increase much in coming years, Houley noted. Therefore, he said, "we're going to have to figure out a way of transferring some of the money presently devoted to support activities to the warfighter – and specifically to pay for force modernization."

He said DoD's ability to buy new equipment for the Services has lagged badly behind requirements. "The age of the equipment we're using across the board is increasing, and that means the cost of maintaining those systems is increased at the rate we can least afford it," he said.

Innovative juggling to shift money from support to warfighting organizations "is something that's very easy to understand and perhaps a bit more difficult to accomplish," Houley said. And he's following Hamre's lead in seeing that the Defense Reform Initiative ensures DoD support elements are agile and responsive to warfighters, who are rapidly applying new technologies to change the way they fight.

To warfighters and the servicemembers who support them, Houley answers the question, "What does this mean to me?"

"We hope it's going to mean two things. First, the care and feeding of our people has always been our principal goal, because if we don't have people, we don't need to worry about equipment.

"The second thing is, one of the many reasons kids come into the Services is they expect to deal with the best technology we have in this country," Houley said. "We do certainly have some of that, but not in the quantities we feel we need." He believes servicemembers want to be in a force that's equipped up to par with the United States' world power role.

He said he welcomes ideas from anybody. "Ideas are part of what makes the organization work. A substantial percentage of ideas, which scratch the itch, are in direct response to what our constituents identify," Houley said. "In the electronic commerce arena, we're trying to simplify and expedite the job."

He wants the Defense Reform Initiative to be invisible to the forces. "Our goal is to have all of these initiatives disappear back into the landscape," Houley said. "In other words, become part of the routine way of doing business. So success is going out of business.

"In a perfect world, when Secretary Cohen finishes his job, we'll be able to fold this whole thing up," Houley said, "not because we will ever get to the point where no further improvements can be made, but because we will feel we have made substantive improvements, that they have become part of the standard way of doing business in the Defense Department, and that we have made good on our commitment to modernize the force in a difficult budget climate."

For more information on the Defense Reform Initiative, point your Internet browser to: **http://www. defenselink.mil/dodreform/index.html.**

Editor's Note: This information is in the public domain at **http://www.dtic.mil/afps/news** on the Internet.

WILLIAM P. HOULEY
DIRECTOR, DoD DEFENSE REFORM INITIATIVE OFFICE
DoD Photo

The Honorable Jacques S. Gansler
Under Secretary of Defense (Acquisition & Technology)

Before the Subcommittee on Military Procurement
and Subcommittee on Research and Development
of the National Security Committee

OCTOBER 8, 1998

Chairman Hunter, Chairman Weldon and Members of the Subcommittees: Slightly less than one year ago, I was confirmed as Under Secretary of Defense for Acquisition and Technology. These 11 months have been, to say the least, a time of challenge, as the Department of Defense seeks to transform our military in order to meet the anticipated threats of the early 21st century and, at the same time, make up for 10 years of decline in our military procurement following the end of the Cold War.

Difficult Choices

They have also been a time of great personal satisfaction, as representatives of our Armed Services and I have had the opportunity to work with you and members of your subcommittees as we struggle with the difficult choices that must be made with the finite resources at our disposal.

I come to you this morning, grateful for your past support of our nation's military and for your present and future commitment to maintaining a national defense that is the envy of the world. We have sometimes disagreed on details, but have never wavered in our common goal to support our men and women in uniform by making them the best equipped and best sustained fighting force in the world.

Beginning to Show Some Wear

Unfortunately, the world's most powerful nation is beginning to show some wear around its defensive edges. We are undoubtedly the world's unchallenged military power. And our readiness is still high. But this will not last if we do not act now. This is an era of rapidly changing threats. The technical requirements to meet those threats must keep pace. But there are so many conflicting demands for defense dollars and so many competing interests for a dwindling supply of funds that we are hard pressed to meet even our most critical needs for items that we cannot do without.

I suppose that, with hindsight, we can see why it is that we have not been able to keep in step with the changing requirements of our military. The answer lies, in part, with the decision to cut back on modernization after the end of the Cold War. We had the best equipment in the world, and lots of inventory, so we could coast for awhile. As the defense budget rapidly declined, however, modernization was deferred in order to fully fund current operations and support and base infrastructure, and thus ensure current readiness. This strategy enabled us to maintain high readiness and operational tempo during the extremely unstable period following the collapse of the former Soviet Union. In fact, during the past eight years, we have deployed forces around the globe *38 times*, almost *four times* that of the previous 30 years. Meanwhile, our procurement account (to fund modernization) has fallen by 56 percent in real terms over the past 10 years!

Reduced Budgets Have Taken Their Toll

The reduced modernization budgets, combined with the increased military deployments, have taken their toll. Our weapons are overworked and aging. By next year, for example, the average age of our aircraft fleet will be over 20 years. Because many of our systems are old and overworked, they require more frequent and costlier maintenance. This accelerated maintenance is costing us much more each year: in repair costs, down time, and maintenance tempo. (As expected, empirical evidence shows that reliability decreases, and maintainability manhours increase with equipment aging and wear-out. Increased corrosion is a simple example.)

Furthermore, because our systems are so old, we find that the spare parts we need from third- and fourth-tier suppliers are no longer available. We reverse-engineer these obsolete parts, which requires extensive lead times, in some cases up to two years – and much higher spare parts costs. Clearly, we must keep our equipment in good repair to maintain readiness. However, it drains our resources – resources we should be applying to modernization or replacement of the existing systems as they become increasingly obsolete (relative to the rapidly changing technology of the information era); and to the development and deployment of the required new systems to counter the anticipated asymmetrical threats of the early 21st century.

Thus, with constrained resources and increased costs to maintain readiness, we continue to stretch out our modernization schedules and reduce the quantities of the new equipment and information systems we purchase — thereby raising their costs still further, and adding to the delay in modernization. Recently, in reviewing the projected DoD five-year fiscal plan, in order to maintain current readiness, we again added to the operations and support budget. Over the five-year period, this amounts to about $4 to $5 billion, or the loss of the equivalent of a *wing* of brand new fighter aircraft.

Logistics of Equal Concern

Of equal concern is the cost of the large logistics support system associated with attempting to maintain our readiness and sustainment. For example, we spend about $4 billion a year to maintain our national supply infrastructure (inventory control points and distribution centers) that were built to Cold War standards, not to respond rapidly to the likely threats of the 21st century.

The dilemma we face right now involves competing — and seemingly unlimited — demands as we seek to meet even our *current readiness* needs. Yet, we know we must also invest now to meet our *long-term readiness* needs: develop the new systems needed to meet the challenges of early 21st century warfare and modernize our current equipment in order to maintain our military superiority.

The Need to Act Now

President Clinton has responded to our *immediate* readiness needs by requesting additional funds. But, we must also respond to an urgent need to act on our *long-range* readiness problem — the need to modernize. It is of the highest priority and greatest urgency that we act now to:

- Make the necessary migration away from traditional weapons systems that were designed to counter a Cold War threat, not the asymmetrical threats we face from terrorists and rogue nations.

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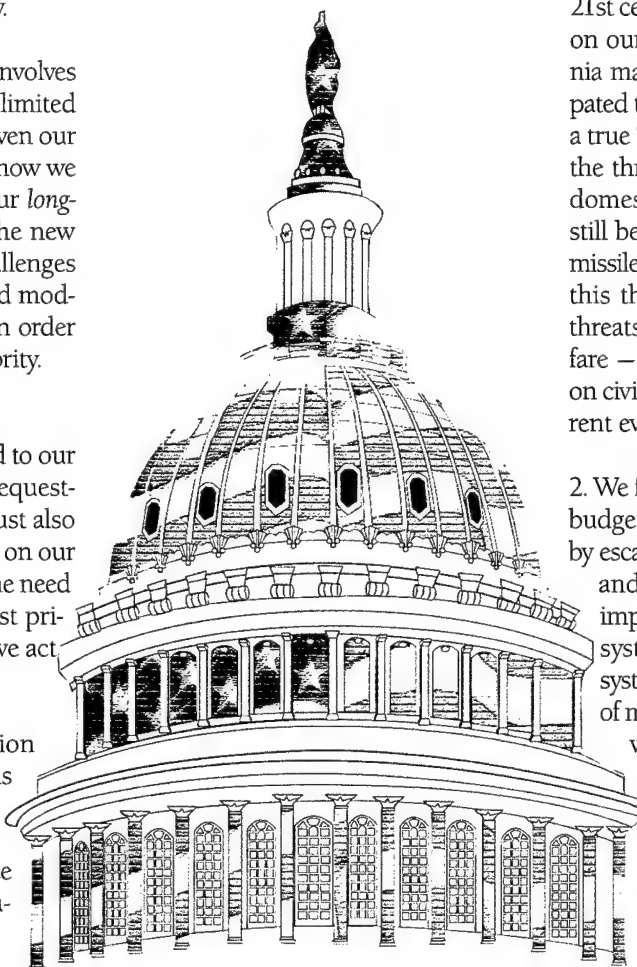
- Move ahead without delay on those new weapons which we believe will be most effective in meeting the unpredictable and dangerous threat from terrorism, rogue nations, and other asymmetrical sources — programs such as theater missile defense and counters for biological, chemical, and information warfare.
- Modernize those legacy systems we must live with as we engage in long-range modernization — increasing their reliability and creating an integrated "digital" battlefield.
- Design and build our future systems to be much more affordable so that we can buy them in sufficient quantities.
- Make those difficult, but absolutely essential, cuts in infrastructure and support that we believe will free up the funds we need for modernization.

The reason for urgency is threefold:

1. We once were able to talk about threats that we "anticipated" in the early 21st century. The recent terrorist attacks on our embassies in Kenya and Tanzania make it all too clear that the anticipated threat is here with us now. We face a true "clear and present danger." While the threat of ballistic missile attack on domestic targets or on our allies may still be a ways off, recent North Korean missile tests, for example, may show that this threat is coming closer. And the threats of chemical and biological warfare — and devastating terrorist attacks on civilian and military targets — are current events.

2. We face an urgent need to reverse the budget-consuming spiral that is created by escalating maintenance costs on aging and overworked systems. We must improve the reliability of the current systems we will be using until new systems are deployed. If not, the costs of maintaining our current equipment will drain funds from long-range readiness programs.

3. Many of the systems under development today — even with accelerated development times — will not become fully operational

until the end of the first decade of the 21st century. The "bow wave" of deferred modernization makes it even more critical to begin to shift funds from support and infrastructure to combat and modernization now, in order to be able to afford such systems as, for example: the Joint Strike Fighter, the DD-21, Comanche, CVX, AAAV, and the Navy Upper Tier Missile Defense Systems.

Given the realities of our current geopolitical/military situation, the need to develop long-term solutions to our current readiness problems, and the time it will require to develop and deploy new weapon systems to counter the unpredictable and dangerous threats we are increasingly facing, there are some additional considerations to take into account to achieve long-term readiness.

Balancing Our Focus

While modernizing, we must balance our traditional focus on weapons platforms (ships, planes, and tanks) with weapons that will counter future asymmetric threats — such as defenses against biological warfare, information warfare, and ballistic missiles. And, on the offensive side, we must increase our funding on enhanced and secure C^3I and long-range, all-weather precision weapons — implementing the full capability of "reconnaissance/strike warfare" (the essence of the "Revolution in Military Affairs").

Additionally, since the most likely combat scenarios for the United States involve coalition conflict, on a multinational scale, we must ensure that the equipment we use is not only interoperable among our Services, but is also interoperable with that of our allies. With the speed of change of technology, and the disparity in defense budgets, this is an increasingly difficult challenge to overcome, but one that is absolutely essential if we are to retain worldwide battlefield dominance.

Also, since we know that we must operate, in the near future, with legacy systems as the basis of our force structure, we cannot simply discard them. It is too expensive and impractical, given our cur-

> **❝ I have called this situation a "death spiral"; and, in fact, we will come to that... if we do not act decisively, _now_. It will require significant cultural change, a sense of urgency, and difficult program funding decisions. The result may be that we will have to put some sacred cows out to pasture — not just keep trying to milk them. ❞**

rent budget constraints. Thus, for the present, we must still invest heavily in upgrading current systems — in terms of both performance and reliability. All this we plan to do. But ask anyone, in any of the Services, and he or she will tell you that the time is fast approaching when all our Services must focus on building the new, rather than "jerry-rigging" the old.

Dealing With Unanticipated Crises

If this were not bad enough, we must also deal with the uncertainty of unanticipated crises, such as continued operations in Bosnia and military support to alleviate suffering around the world.

Even the Y2K computer problem — although not entirely unanticipated — in a flat-budget environment further drains funds from modernization.

To reverse this trend — with current short-term needs consuming an ever-increasing "share of the pie" at the expense of longer-term military capability — will be extremely difficult. I have called this situation a "death spiral"; and, in fact, we will come to that...if we do not act decisively, now. It will require significant cultural change, a sense of urgency, and difficult program funding decisions. The result may be that we will have to put some sacred cows out to pasture — not just keep trying to milk them. Popular, but outdated, weapons systems will have to give way to non-traditional, but effective, defenses against new threats. Underutilized and/or non-competitive infrastructure and support must be eliminated.

Unpopular, Difficult Choices Ahead

The required actions are — I admit — both unpopular and extremely difficult. But, I believe we have no choice. I have already mentioned most of them, but let me summarize specific initiatives we must take:

- **Additional base closures.**
- **Termination** of contracts for a number of traditional weapons systems in order to **fund the required newer systems.**
- Drastic **improvement in cycle times** (from 18-year developments toward 18 months; and from 40 days for spares order-to-receipt time to four days).
- **Competitive sourcing of all but inherently governmental functions;** and a **rapid reduction in the civilian and military workforce** made possible by the increased use of competitive market forces.
- A **significant increase in investments for reliability enhancements** on the large number of currently deployed systems.
- Widespread and full **implementation of the "acquisition reforms"** initiated over the last few years — including cost

as an independent variable, along with a military requirement and elimination of the current barriers to civil/military industrial integration (such as the government's specialized accounting and auditing systems), plus increased use of performance-based service contracting. We must remain totally focused on continued reform in order to get where we need to be.

- Full and rapid **transformation of the complete DoD logistics system** into a much more responsive, significantly lower-cost system.
- And last, but most important, **a full and rapid transformation of our military tactics, doctrine, and structure** to actually realize the strategy of the Chairman's "Joint Vision 2010."

We appreciate the past support we have received from you in the Congress as we make the necessary transformation to ensure long-term readiness. The Congress has responded positively to our need to cut back on unnecessary infrastructure and to take positive steps to reform our acquisition process. This partnership has been positive and beneficial. The representatives of the Services who are here with me today join me in pledging our continued best efforts to achieving modernization and improving our readiness.

Making the Right Decisions

In closing, Chairman Hunter and Chairman Weldon, I want to assure you that I would not be here this morning if I did not firmly believe that, working together, the Congress and the Administration can achieve long-range readiness goals. I come, not as an alarmist or as a prophet of doom — although I do believe we are headed into quicksand if we do not act quickly — but rather as a concerned citizen and as a public official in whom you have placed great responsibility for making the difficult transformation in our defense acquisition process.

What I want, 10 years from now, is for us to be able to say, "I'm glad we made those decisions back in '98 and '99. Where would we be if we hadn't?" I am confident we'll be able to say that — with your help and support.

avy Cmdr. **Jill Garzone**, Director, Human Resources and Administration, departed the college on Sept. 30, 1998, to become the Deputy Director, OPNAV Services and Security Division, Pentagon, Washington, D.C. Garzone joined the DSMC staff in October 1994, and remained Director of the Human Resources and Administration Department throughout her assignment.

avy Aviation Warfare Systems Operator Master Chief and Naval Aircrewman **Samuel J. Hindman**, Senior Enlisted Advisor, retires from active duty effective Jan. 1, 1999. In addition to several assignments within the continental United States, Hindman's 30-year career also included deployments to the Western Pacific in support of operations in and around North Vietnam, South Vietnam, North Korea, and South Korea; Kadena, Japan; Deigo Garcia, British Indian Ocean Territory; Bermuda; and Adak, Alaska.

avy Aviation Warfare Systems Operator, Air Warfare and Naval Aircrewman Senior Chief **Scott A. Russell** joined the DSMC staff as Senior Enlisted Advisor, effective Sept. 30, 1998. Russell comes to the college from the Office of the Chief of Naval Operations (N88), Director Naval Aviation, where he served as the Naval Aircrewman Training Requirements Officer, Washington, D.C.

ohn T. **"Tim" Shannon**, Associate Dean of Faculty, became the Dean of Faculty effective May 8, 1998. Shannon joined the college in February 1991 after 21 years' military service with Department of Navy. First assigned as an instructor in the college's Funds Management Department, Shannon assumed increased levels of responsibility as Business Department Scheduler; Department Chair, Funds Management Department; and Associate Dean of Faculty.
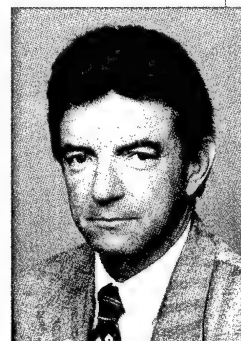
Defense Department Makes Progress with Reform Actions

eputy Secretary of Defense John J. Hamre today issued an interim status report on Secretary William S. Cohen's Defense Reform Initiative, the ongoing reform program to apply key lessons from business and industry to make DoD and the Military Services more efficient and productive. Speaking at a press briefing at the Pentagon, Hamre said, "We are by no means finished doing everything we need and want to do to make us more business-like, but we are making great progress. We are aggressively applying to the Department essential business principles that American industry has successfully used to become leaner, more flexible, and more competitive."

Hamre praised the Congress for supporting the reform initiative. "The bi-partisan support for defense reform has been very encouraging, and we will continue to seek support in the future," Hamre said.

The savings from DoD reforms, estimated to be in the billions of dollars, are being targeted toward vital defense programs, Hamre said. He also emphasized the less quantifiable improvements in customer service, organizational flexibility, and quality of life produced by the ongoing initiatives. "We have begun a fundamental shift in the way we do business, and our long-term goals remain the same. We will continue to reengineer, consolidate, compete, and eliminate," he said.

Hamre said that innovations resulting from DRI will help support the "Revolution in Military Affairs" to ensure U.S. military superiority into the future. "The DRI is also aimed at ensuring that DoD support elements will be agile and responsive enough to support the warfighters, who are rapidly applying new technologies that will enable them to dominate the battlefield of any future conflict."

The Department is vigorously pursing savings from public-private competitions. It will compete about 230,000 positions between Fiscal Year 1997 and 2003, allowing the marketplace to determine who can do the job the best and at least cost. This will result in $6.3 billion in estimated savings. The process of competing these non-core functions makes our operations more efficient, no matter who wins the work.

- **San Diego:** A private firm now operates Navy family service centers for 35 percent less than when the Navy did it.
- **Redstone Arsenal:** Government employees retained maintenance work by cutting their own staff almost in half, saving $1.7 million.
- **Savannah:** At Hunter Army Airfield, Ga., a single contractor provides a relocation package that includes move management services for household

goods and relocation services — customer satisfaction is 98 percent.
- **Patrick AFB:** Workers designed a plan that cut the workforce by 40 percent through cross training of employees. The plan beat outside contractors for communications maintenance work and saved millions.
- **Kaiserslautern, Germany** (6966th Transportation Truck Terminal): Created an additional 66 truck-driver positions by cutting management. The change increased truck-haul missions by 7,000 annually, saving $1.46 million on outside contracting.

DoD is moving rapidly into Internet-based electronic commerce to streamline our purchasing. The **Joint Electronic Commerce Program Office (JECPO)** was established to facilitate the transition to electronic commerce, which cuts overhead and contracting costs, eliminates middlemen, and makes DoD more

the micro-purchases (under $2,500) made by the DoD acquisition community in Fiscal Year 1998, about 85 percent were made using the IMPAC card. Internal costs are often cut by more than half when an IMPAC card is used instead of a traditional purchase order.

Deputy Secretary Hamre has directed the IMPAC program be expanded to cover:

- All training costs below $25,000.
- All medical services and non-appropriated fund payments below $2,500.
- Goods and services under $2,500, purchased using standard contracting instruments.
- All military inter-Departmental purchase requests below $2,500.

Applying the Best Ideas of the Private Sector

DoD is taking the best practices of America's dynamic private sector and applying them to its operations. Learning from decades of industry practice, the Department is saving money and improving operations through competition and improved management.

The Defense Management Council, chaired by the Deputy Secretary, serves as the board of directors for the Secretary's defense reform efforts.

DoD is recruiting a panel of top corporate CEOs to provide advice and examples from the private sector. Retired Air Force Gen. Walter Kross will chair the panel, which will meet for the first time in January 1999.

DoD has radically altered the way it reimburses employees for travel, replacing a wasteful nightmare of forms and office visits with a simple, fast, reliable system. Feedback from 29 sites indicates a 654-percent decrease in administrative costs and a 31-percent decrease in the time it takes for people to get reimbursed for travel.

As part of the Department's efforts to adopt best business practices, the Defense Agencies were directed to prepare annual Performance Contracts for review by the Defense Management Council. (The Defense Management Council includes many of the Department's senior military and civilian leaders.) The

customer-friendly to businesses large and small — many of which had previously found it difficult and expensive to do business with the Department.

JECPO is moving DoD toward Paperless Contracting. All aspects of the contracting process for major weapons systems are scheduled to be paperless in the year 2000.

Our new Electronic Mall (the "E-Mall") allows customers to search, locate, compare, and order material based upon quality, price, and availability. The E-Mall is a "point, click, and ship" Internet-based system for locating and ordering commercial items quickly and easily. It streamlines the traditional procurement process — reducing delivery time for commercial items from weeks and months to as quickly as 24 hours. This flexible system can allow the addition of unlimited numbers of commercial electronic catalogs to increase commercial item support to the warfighters.

The IMPAC card is a commercial VISA card issued to individual offices and organizations for official purchases under $2,500. It provides a less costly and more efficient way for the Department to buy goods and services directly from vendors instead of processing requests through procurement offices. Of all

requirement recognizes that Defense Agencies provide products and services to the Department much like those of commercial businesses, but do not have the discipline of the civilian market.

MEDJOC (Medical Job Order Contracts) are delivering results faster than traditional contracting for medium-size projects in Fort Worth.

ID/IQ (Indefinite Delivery/Indefinite Quantity) contracts for medium-size projects are cutting delivery time and costs at Ft. Bragg, N. C.

Navy incorporation of **Sustainable Design Principles** in the design and construction of new buildings is increasing energy conservation, productivity, and improving health conditions.

Improvements from Consolidation

Cohen is realigning the Department to better execute its post-Cold War missions. Agencies and offices that were designed to operate in a bi-polar world are now being merged or restructured to meet the realities of today's threats.

On Oct. 1, 1998 Cohen inaugurated the Defense Threat Reduction Agency a new, unified defense agency to counter threats posed by weapons of mass destruction. This merger of three Cold War Era agencies will improve America's capability to contain chemical, biological, and nuclear threats. The new agency will have a budget of $1.9 billion and employ over 2,000 people.

For many years, the military has received immeasurable benefit from its focus on education for its officers and servicemembers. On Oct. 2, 1998, Cohen welcomed the Department's first **Chancellor for Education and Professional Development,** who will provide the same focus for DoD's 730,000 civilians. The first chancellor, [Dr.] Jerry Smith, will develop and administer a coordinated program of civilian professional education and training.

Streamlining and Downsizing

The Department of Defense is making real and substantial cuts in its headquarters staff. Secretary Cohen is leading by example, cutting a full one-third of the positions in the Office of the Secretary of Defense (OSD). One thousand of the 3,000 staff positions in

OSD are being eliminated – more than 780 are already gone.

Eliminating Buildings and Structures

Eighty million square feet of obsolete and excess buildings are targeted for demolition and disposal by Fiscal Year 2003. Approximately 10 million square feet were eliminated in Fiscal Year 1998. Fifteen million more will be gone by the end of Fiscal Year 1999. When completed, recurring savings should exceed $160 million annually.

Other Activities

The Defense Reform Initiative has spawned an array of innovative and exciting changes in DoD business practices. A few examples:

In August 1998, a **Defense Working Capital Fund Task Force** was formed to improve the Department's ability to request and account for funds in a manner that meets the needs of the Armed Forces and is acceptable to Congress.

The Defense Logistics Agency (DLA) has developed a **Prime Vendor Program** designed to permit offices that handle maintenance for DoD facilities to order maintenance, repair, and operations supplies directly from integrated supply chain contractors. The program goal is to provide items quickly to meet customer needs at discounted commercial prices. DLA has completed its award of regional contracts providing nationwide coverage.

The Department's initial reengineering of temporary duty travel (travel on official business) converted what was essentially a paper-based, personnel-intensive process, into an electronic, user-friendly, state-of-the-art travel management process rivaling the best industry practices. In August 1997, the Department extended the travel reengineering effort to study improving the current **Ready Reserve Travel** for reservists and guardsmen, and **Permanent Duty Travel** for employees assigned to work in new locations. About 775,000 military and 25,000 civilians relocate annually.

Editor's Note: This information is in the public domain at **http://www.defenselink.mil/news/** on the Internet.

Secretary of Defense William S. Cohen
At the Swearing In Ceremony of the DoD
Chancellor for Education and Professional Development

PENTAGON, OCT. 1, 1998

I'm delighted to be here to celebrate the investiture of Dr. [Jerome F.] Smith and the beginning of a new era in this Department's education of its civilian workforce.

President Kennedy once said that "Our progress as a nation can be no swifter than our progress in education." That's equally true of this Department.

Over the years we have put a lot of focus on training our service members and officers, and the rewards I think, have been immeasurable. We now have to put the same emphasis on developing the skills of our vital civilian workforce.

The 730,000 civilians who serve DoD form a cadre of unsurpassed talent, expertise, and promise, and the strength of this Department and the security of this nation hinge in no small measure on their ability to realize their full potential, and therefore it's critically important that we provide world-class professional development education for our employees.

So it's with great pleasure that I welcome "Jerry" Smith as the first Chancellor for Education and Professional Development. He is uniquely qualified and suited to lead our civilian education effort. The Department of Education system is in his blood from his first days as a

Dr. Jerome F. "Jerry" Smith, Jr.
First DoD Chancellor for Education and Professional Development

"I've been in the military education system since I signed up in 1957 as a midshipman, and that's one of the [best] things about the professional military education system. It's a lifelong process."

— Dr. Jerome F. Smith, Jr.

DoD Photo

midshipman at Annapolis to his most recent post as Dean of the Information Resources Management College.

I have full confidence in his ability to establish this position as a vigorous, visionary guiding hand on matters involving civilian education. I know he has the support of the entire Department, particularly those in our education community who support him in his new role.

This appointment is also another milestone in our Defense Reform Initiative, which has had a very successful first year thanks to Dr. Hamre. Credit really does belong to John [Hamre] and Bill Houley and the thousands of employees throughout this Department who have contributed their energy and creativity to making DoD a better, more efficient organization. And I'd like to offer special thanks to Vice Admiral Jack Baldwin who has done a fantastic job in creating the blueprint for this chancellorship. All of you — I want to express my thanks for your great contribution.

(Chancellor sworn in by Deputy Secretary Hamre)

Thank you Secretary Cohen and Dr. Hamre. It is indeed an honor for me to have your support in undertaking this new challenge. As the Secretary mentioned, I have personally benefited from the emphasis the U.S. military has placed on education and lifelong learning for career development.

For the past six years I have been privileged to be a part of the professional military education system at its flagship organization, the National Defense University. Both the Industrial College of the Armed Forces and the Information Resources Management College include civilian members of the Department of Defense as well as other Federal Government civilians as members of their student body.

I know just how much these folks benefit from and value their opportunity for education experience, but I also know that few of our civilians get such a chance.

Therefore, I am delighted to be given the task of working with the educational and career development resources which the Department supports to ensure our civilian workforce has systematic access to quality educational programs.

I must be able to assure Departmental leadership that the significant funding invested in education and in education resources is receiving the highest quality return possible.

I look forward to organizing this new office and developing close working relationships with the leaders of our many educational institutions and programs carrying out this work today.

I want to thank Dr. Diane Disney and Vice Admiral Jack Baldwin for their pioneering work in identifying the elements of this challenge. Secretary Cohen, Dr. Hamre, I appreciate your confidence in my ability to pull this together, and I pledge my full energies to carry out the mission assigned.

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reg Caruth, Director of the Defense Systems Management College Visual Arts and Press Department, has added another bronze sculpture to the DSMC main campus at Fort Belvoir, Va. Two years ago he created a bust of DSMC's first commandant, Army Brig. Gen. Winfield Scott, which resides in Scott Hall. Now, he has added a bust of David Packard, Deputy Secretary of Defense in the early 1970s.

The bust will reside permanently in the lobby of the DSMC headquarters building. Caruth decided to portray Packard in his later years, which is the way he [Caruth] remembered him from his return visits to the campus.

Says Caruth, "Scott and Packard are two people to whom I feel the College owes great respect and remembrance. I'm very proud the College has welcomed my efforts to capture them for future generations to enjoy. This way their contributions won't be forgotten."

Caruth is one of the few original DSMC employees still at the College, having served as an enlisted graphic artist on the staff of the original Defense Systems Management School back in 1971.

The clay original, which took about 35 hours to create at his home, was molded and cast at Equestrian Forge foundry in Leesburg, Va. The pedestal was created for DSMC by Tim Lavelle in the Carpentry Shop on post.

Fixing the Fiscal 2000 Defense Budget

JIM GARAMONE

WASHINGTON — Modernization and readiness are two areas of concern to DoD, and the president has directed the Department to "fix" those areas in the fiscal 2000 budget, Defense Secretary William S. Cohen told the Senate Armed Services Committee Oct. 6.

Cohen told lawmakers the president directed him to work with the Office of Management and Budget, the National Security Council and Congress to fix readiness and modernization problems in the fiscal 2000 budget request.

"The temporary measures that we took were not adequate," he said. "It's important we send the signal to the men and women in uniform that we care about them, that we have indeed identified the nature of the problems, and now we've got to take constructive actions to deal with them."

Procurement is key to future readiness, Cohen said, and while the fiscal 1999 budget has more funding for procurement, the Department cannot reach its $60 billion spending target unless it is allowed to close more bases or bust its budget.

"Without additional [base] closures, we will not achieve the $20 billion in projected savings in the years where some major systems are scheduled to come on line," Cohen said. "If we don't achieve the savings, something has to give."

Under the current fiscal environment, this means DoD will have to cancel or scale back new systems. "There are no easy decisions," he said. "We can keep the status quo, but if we do, we are going to deprive the future and deprive our men and women who are serving in the military — from having the kind of systems they require."

Short-term readiness also needs Congress' attention, Cohen said. Four aspects affect readiness: the economy, pay, retirement, and operations tempo.

The U.S. economy is strong and going after the same quality young people the military needs, Cohen said. The propensity for young people to enlist is down, but, Cohen said, increased money to advertise may turn that around.

Cohen said the disparity between military and civilian pay comes up most often in his travels around the U.S. military. Servicemembers are concerned about this disparity, which, Cohen said, is between 13 and 14 percent.

Retirement is second only to pay as a source of concern to servicemembers, Cohen said. He said the Pentagon will work with Congress to change the system.

Finally, he said, the increased operations tempo of the post-Cold War world is hurting readiness. "Mechanisms have been put in place to try to deal with this," Cohen said. "We have been sending those that are called low-density, high-demand forces too often out in the field. We are wearing them down. And so, a better mechanism for finding out which units and which individuals in those units are being overused has been put in place."

During earlier testimony, senators castigated the Joint Chiefs of Staff for taking so long to bring readiness and modernization problems to their attention. Cohen told the senators to blame him. He said he made a political judgment that legislators would not give DoD more money, considering the balanced budget agreement between Congress and the executive branch.

Cohen said he tried to get as much money from efficiencies within the Department before going to Congress. "I believe [my judgment] was the right one at the time," he said. "I believe it was right for me to try to get as many efficiencies as possible from the [contracting out] competitions, from the base closures — which we didn't get — and from the reforming of the way in which we do business. I had to do that before I could justifiably come to you and say, 'Now we have to do more.'"

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Impact of Joint Technical Architecture On Navy Acquisition

Commonality — Easy to Talk About, Difficult to Achieve

CMDR. JAMES ERICKSON • LT. CMDR. DAVE LOAR • LT. CMDR. DOUG MCBANE
CMDR. MIKE PAVLICK • LT. CMDR. MIKE PEEK • CAPT. NICK TREDENNICK • LT. JOE WALKER
U.S. NAVAL RESERVE

Today's battlespace is a complex and dynamic environment requiring increased levels of data and information processing in order to make timely and accurate operations planning and combat decisions.

To improve and facilitate the ability of Department of Defense (DoD) systems to support joint and combined operations, in August 1996 the Under Secretary of Defense for Acquisition and Technology (USD[A&T]) and the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (ASD[C³I]) mandated Joint Technical Architecture (JTA) — a minimum set of standards and guidelines for the acquisition of all DoD Command, Control, Communications, Computer, and Intelligence (C⁴I) systems and their interfaces.[1]

Commonality

Although commonality among programs is hardly a new concept, it is difficult to achieve, especially from a joint perspective. Project designers with no knowledge of other systems with similar capabilities tend to "reinvent the wheel," which is not only expensive but potentially detrimental to operational commonality. (In other words, "my radio can't talk to your radio.")

The JTA attempts to apply sound technical and business practices in an area that continues to experience exponential growth. It is critical that you, the Navy program manager (PM), be aware that the JTA exists, and how it will affect your program, large or small. Ultimately, you are responsible for ensuring your program complies with JTA requirements.

Where Did JTA Come From?

The JTA resulted from the ASD(C³I) tasking Service and Agency principals involved in developing C⁴I systems to establish a unifying technical architecture for all future DoD C⁴I acquisitions so that new systems would be joint and interoperable, and existing systems would have a baseline to move toward interoperability.[2]

A Joint Technical Architecture Working Group, chaired by ASD(C³I)/C⁴I Integration Support Activity (CISA) was formed, and subsequently enhanced in 1997 under the direction of a Technical Architecture Steering Group, co-chaired by the ASD CISA and USD(A&T) Open Systems Joint Task Force.

Department of the Navy interests are represented by Space and Naval Warfare

FIGURE 1. JTA Hierarchy
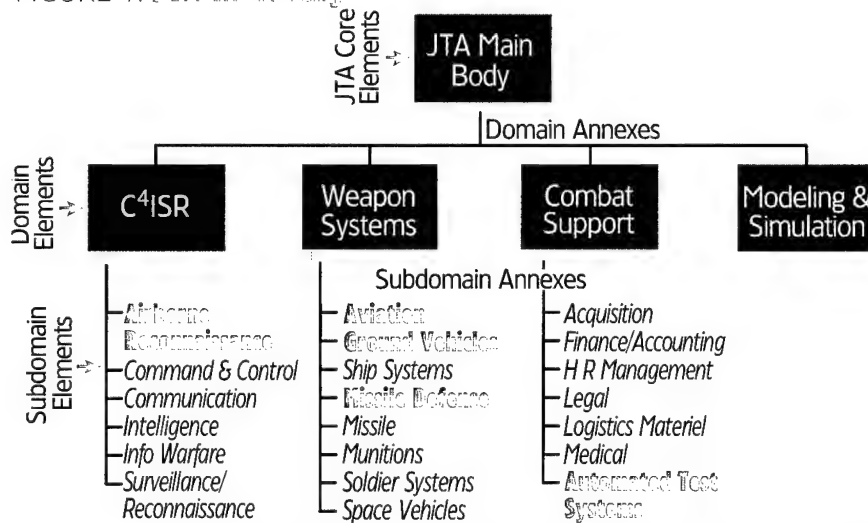
Bold subdomain names indicate Subdomain Annexes present in this version of the JTA. Italicized subdomain names are candidates for Subdomain Annexes in future versions.

Authors are Naval Reserve Officers in Naval Air Systems Command 1187, attached to Naval Air Reserve Santa Clara, located at Moffett Federal Air Field, Mountain View, Calif. Employed as engineers in various companies throughout the San Francisco Bay area, they are Aeronautical Engineering Duty Officers, Aeronautical Maintenance Duty Officers, or Aviators in the Naval Reserves.

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Systems Command 051-1 Architectures Division, the office responsible for the development and coordination of the Navy JTA Process. The JTA replaced the standards' guidance for DoD C⁴I applicable system acquisitions delineated in *Technical Architecture for Information Management (TAFIM)*.

The JTA contains performance-based, primarily commercial, information processing, transfer, content, format and security standards that specify the logical C^2 interfaces and the C^4I systems that directly support them.

Although initially focused on information technology (IT), the JTA concept will eventually be applied to promote joint interoperability in other technological areas, such as electrical power, electronic backplane bus standards, and hydraulic connectors.[3]

JTA Structure

The JTA is organized into a main body, followed by domain annexes, subdomain annexes, and a set of appendices.

The main body identifies the "core" set of JTA elements, including service areas, interfaces, and standards. Except for the overview, each section of the main body is divided into three subsections as follows:

- **Introduction** – Defines the purpose and scope of the subsection and provides background descriptions and definitions that are unique to the section.
- **Mandates** – Identifies mandatory standards, profiles, and practices that are applicable to the domains covered by the JTA.
- **Emerging Standards** – Provides an abbreviated description of "candidates" to add to or to replace present standards. This subsection helps PMs determine technological requirements that likely are to change in the near term (within three years), thereby enabling them to identify areas in which "upgradability" should be a concern.

Emerging standards may be implemented, but should not be used in lieu of a mandated standard. However, the expectation is that as emerging standards are implemented, they will be elevated to mandatory status.

Information Technology (IT) Standards

Section 2, also called the JTA core or main body, addresses commercial and government standards common to most DoD IT, grouped into the following categories: information processing standards; information transfer standards; information modeling, metadata, and information exchange standards; human-computer interface standards; and information systems security standards. Each category addresses a set of functions common to most DoD IT systems.

Domain and Subdomain Annexes

JTA domain and subdomain annexes use the common service areas, interfaces, and standards supporting interoperability across systems within the domain or subdomain. In addition to the elements in the JTA core, the JTA domain annexes contain domain-specific JTA elements applicable within a specified family of systems to further support interoperability within all systems in the domain.

Domains may be composed of multiple subdomains. Subdomains represent the decomposition of a domain (referred to as the subdomain's parent domain) into a subset of related systems, exploiting additional commonalities and addressing variances within the domain.

Subdomain annexes also contain domain-specific JTA elements applicable within a specified family of systems to further support interoperability within all systems in the subdomain, in addition to those in the JTA core and the parent domain annex.

Figure 1 shows the currently defined JTA core, domain annexes, and subdomain annexes and their relationships. Domain annexes include:

- Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance

- Combat Support
- Weapon Systems
- Modeling and Simulation

Subdomain elements include:

- Airborne Reconnaissance
- Automated Test Systems
- Missile Defense
- Ground Vehicles
- Aviation

The goal is to build on these annexes by incorporating the requirements of additional domains and subdomains. Each annex includes an introduction clearly specifying the purpose, scope, description of the domain, and background of the annex.

In addition, each annex maps its standards and guidance to the JTA structure, with exceptions, additions, and extensions as necessary. Annexes generally use the technical reference model, but may include a different or expanded model. They may also address emerging standards that are of interest to the domain.

Appendices provide supporting information that is not mainline to the purpose of the document, but facilitates its use, such as how to get a copy of mandated standards, and available links to home pages of various standards organizations.

Supplements address technical architecture exceptions, additions, and extensions for specific DoD organizational entities. Each supplement has an introduction clearly specifying its purpose, scope, and background. Supplements identify mandated standards within a framework that can be mapped to the JTA structure and address emerging standards that are of interest to the organization. Supplements may address JTA annexes as well as standards and guidance from the body of the JTA.

The JTA is mandated for all DoD Services and Agencies; supplements are mandated only for the specific Service or Agency preparing them. Service or Agency supplements are, however, sub-

ject to joint review to ensure the supplements are within the scope of the JTA and are consistent with the approved mandates.

The JTA always takes precedence over supplements except where a supplement documents and justifies an exception to a JTA mandate. DoD Service or Agency supplements may be published with or separate from the JTA.

How JTA Applies to Navy Acquisition and Modernization

JTA applies to all systems that produce, use, or exchange information and is mandatory for emerging systems and systems upgrades. It also applies to all C^4I systems and the interfaces of other key C^4I system assets, such as weapon systems, sensors, and office automation systems. In addition, the JTA applies to C^4I Advanced Concept Technology Demonstrations (ACTD) and other activities that lead directly to the fielding of operational C^4I capabilities.

All emerging Navy C^4I systems and system upgrades are required to implement the JTA.[4] C^4I systems with Milestone II approval must implement the JTA at the earliest opportunity considering cost, schedule, and performance impact. The definition and implementation of new C^4I systems and system upgrades are accomplished through the in-place Department of Defense-Department of Navy (DoD-DoN) acquisition process.

The Navy's strategy for evolving to the JTA-compliant C^4I system (shown in Figure 2) is documented in *Copernicus... Forward Annual Naval C^4I Implementation Guidance (CFANCIG)*.

A core element of this strategy is to field standards-based applications and resources. Although not explicitly stated in the first *CFANCIG* version, the standards-based applications and resources being fielded must comply with the JTA. Through incremental fielding of JTA-compliant improvements, baseline C^4I systems evolve to the fully JTA-compliant, objective C^4I system.

Figure 3 depicts a summary-level timeline for Naval C^4I implementation that uses four overlapping five-year phases for C^4I system implementation. Staggered phasing, which aligns with Program Objective Memoranda 96, 98, 00, and 02 accommodates incrementally establishing system engineering activities, such as requirements, security architecture, and introducing system capabilities.

Section 7 of the *CFANCIG* document describes each of the four implementation phases and its focus:

Phase 1 — Establishes the networking foundation for the objective C^4I system.

Phase 2 — Adds communications capacity; enhances wide area networking;

implements fully joint interoperable messaging; transitions software applications to a more unified Common Operating Environment (COE); initiates the integration of Command, Control, and Intelligence (C^2I) and Combat Direction Support (CDS) functions; implements shared data environment with standard data elements; integrates simulation and modeling with C^4I systems; installs computer-based secure network servers; embeds Information Warfare (IW) into C^4I architecture; and integrates new C^2 functions into the Fleet.

Phase 3 — Adds communications capacity; introduces a high-capacity backbone to Naval ship and submarine platforms; implements an integrated C^4I equipment suite; introduces 3-D C^3I applications; and proliferates knowledge-based training and simulation.

Phase 4 — Integrates C^4I systems with weapons and sensors; adds virtual reality to applications; and implements intelligent, programmable front-end sensors.

Compliance

To achieve and validate JTA compliance, the requirements of Compatibility, Interoperability, and Integration (CII) will be reviewed as part of the phased update of all documentation, processes, and procedures currently required by the existing acquisition process and applicable DoD/DoN documentation.

The process of defining and validating requirements requires the coordinated use of a Mission Needs Statement (MNS), an Operational Requirements Document (ORD), a System Specification, and a Test and Evaluation Master Plan (TEMP) to ensure accurate system identification. Complying with current industry standards requires, at a minimum, the following progressive steps:

- Select the intended standards approach.
- List and identify applicable interface standards.
- Develop a standards profile(s).
- Demonstrate and assess system's CII in its respective Joint Mission Area .

FIGURE 2.

STOVEPIPE SYSTEM ARCHITECTURES	DOMAIN-SPECIFIC ARCHITECTURES	NAVAL C^4I INFORMATION ARCHITECTURE	SYSTEM OF SYSTEMS ARCHITECTURE
C^2 Support Tactical Support Environmental Sensor	JMCIS C^2 User Support Domain Integration	Copernicus Command and Control Communications Combat Direction User Support	Single Joint C^2 Unified Warfighting System
Cryptologic	JMCOMS Communications Domain Integration		°Copernicus °Horizon °MAGTF °Enterprise
Communications Combat Direction Sensor	Sensor Domain Integration		

FIGURE 3. [illegible]

PHASE

POM 02 2002 - 2007
- Continued C⁴I suite implementation
- Fully integrate sensors and weapons
- Evolve enhanced information capabilities
- Decrease systems security risk

POM 00 2000 - 2005
- Fully implement integrated C⁴I suite
- Initiate enhanced information capabilities
- Decrease systems security risk

POM 98 1998 - 2003
- Implement architecture
- Increase communication capacity
- Add IW protect
- Decrease systems security risk

POM 96 1996 - 2001
- Convert C...F concept to requirements
- Establish and formalize architecture
- Initiate system engineering
- Establish network backbone
- Increase communication capacity
- Migrate to standards-based COE
- Implement security risk management
- Initiate sensor-to-shooter integration

96 98 00 02 04 06 YEAR
CVN-68 CVN-76 LPD-17 CVX-78 SC-21 NSSN

JTA Compliance — Approval Process

JTA compliance is attained by using documentation, processes, and procedures already required by the existing acquisition process. Figure 4 shows an overview of the process, responsible activities, and data requirements with respect to the approval of the MNS, ORD, System Specification, and TEMP.

Before approving any C⁴I capability, the Director, J-6, and the Joint Staff must certify the need as identified by the MNS, the operational requirement as defined in the ORD, and conformance to joint C⁴I policy as it pertains to doctrine, interoperability, architectural integrity, and joint potential.

Figure 4 shows how JTA requirements are addressed in the program requirements and acquisition documentation phase. JTA requirements are reviewed and, if necessary, modified throughout the entire acquisition process. Applicable documentation is also updated to reflect changes and modifications to the

baseline system requirements. Deviations from JTA requirements are reviewed at each milestone decision point. Recertification of the JTA requirements, as they are reflected in the MNS/ORD, is accomplished, as necessary.

Roles and Responsibilities

The primary roles and responsibilities of those DoN components involved in the JTA compliance approval process follow:

- **Program Managers (PM)** are responsible for the identification and implementation of applicable JTA requirements for those programs for which they have acquisition responsibility. PMs identify, plan, and budget the necessary resources to support JTA implementation efforts, including compatibility, interoperability, and integration testing and evaluation of systems and equipment.
- **Systems Command (SYSCOM) Commanders** ensure that PMs have identified and implemented applicable JTA requirements.
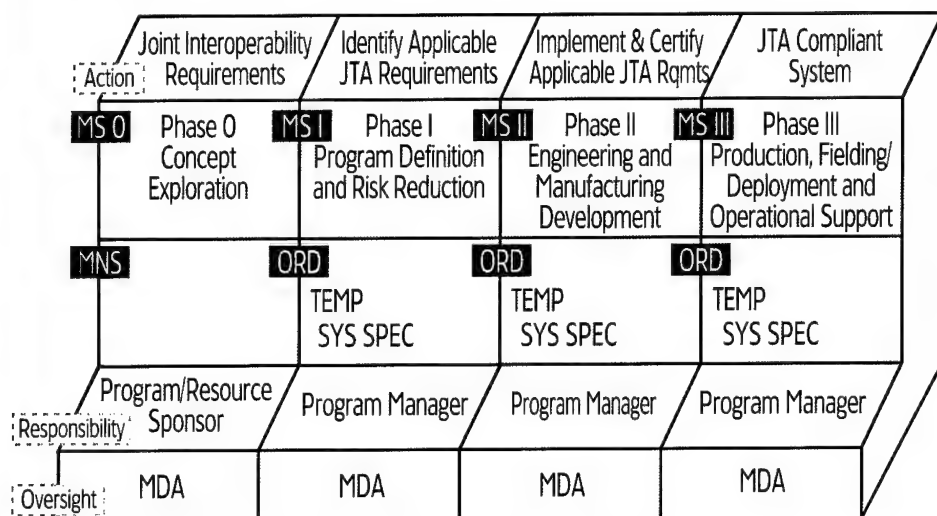
- **Program Executive Officers (PEO)** review and assess assigned programs, and act as milestone decision authorities for certain programs. PEOs ensure that PMs have identified and implemented applicable JTA requirements.
- **Milestone Decision Authority (MDA)** serves as the decision authority for assigned programs and ensures that DoN programs have identified and implemented applicable JTA requirements. The Assistant Secretary of the Navy for Research, Development and Acquisition (ASN[RD&A]) is the DoN MDA for Acquisition Category (ACAT) IC, II, and III level programs. SYSCOM Commanders, PEOs, and Direct Reporting Program Managers (DRPM) act as MDAs for ACAT IV programs, as assigned by ASN(RD&A).

   Current ACAT/MDA assignments are part of the Acquisition Program Database maintained and issued by ASN(RD&A). The Milestone Decision Authorities report JTA implementation status to the Deputy Assistant Secretary of the Navy for C⁴I/Electronic Warfare/Space, who consolidates the information for the Service Acquisition Executive.
- **Service Acquisition Executive (SAE)** delegates milestone decision authority to the appropriate level and ensures that DoN programs have identified and implemented applicable JTA requirements. The SAE for the Navy is the ASN(RD&A).
- **Program/Resource Sponsor** acts as the user representative, providing explicit direction with regard to joint interoperability, mission need, and operational requirements generation (MNS/ORD) and changes; programming the funds necessary for proper execution; defining the thresholds and parameters for operational testing; preparing the necessary program documentation; and keeping the Chief of Naval Operations informed on issues and the need for programmatic changes.
- **Chief of Naval Operations (CNO)** serves as the Navy ACAT I program MNS and ORD validation and approval authority whenever the Joint Requirements and Oversight Council (JROC) does not retain the authority.

FIGURE 4. JTA Document Requirements

Action	Joint Interoperability Requirements	Identify Applicable JTA Requirements	Implement & Certify Applicable JTA Rqmts	JTA Compliant System
	MS 0 Phase 0 Concept Exploration	**MS I** Phase I Program Definition and Risk Reduction	**MS II** Phase II Engineering and Manufacturing Development	**MS III** Phase III Production, Fielding/ Deployment and Operational Support
	MNS	**ORD** TEMP SYS SPEC	**ORD** TEMP SYS SPEC	**ORD** TEMP SYS SPEC
Responsibility	Program/Resource Sponsor	Program Manager	Program Manager	Program Manager
Oversight	MDA	MDA	MDA	MDA

- Incorporates JTA compliance/validation into DoN acquisition process
- Systems past Milestone II will implement the JTA at earliest opportunity considering cost, performance, and schedule.

The Deputy Chief of Naval Operations (Resources, Warfare Requirements, and Assessments) (CNO [N8]) reviews, validates, and prioritizes MNSs and ORDs for Navy ACAT II-IV level programs. The CNO (N8) (ACAT IC-IV) validates Acquisition Program Baseline Key Performance Parameters extracted from the ORD and serves as the principal interface between CNO and ASN(RD&A) on matters relating to Test and Evaluation (T&E).

The CNO reviews or endorses ACAT I-III TEMPs and also identifies, defines, validates, and prioritizes mission requirements; programs the appropriate resources through the Planning, Programming, and Budgeting System (PPBS); and coordinates the T&E process.

- **Commander, Operational Test and Evaluation Force (COMOPTEVFOR)** is responsible for independent operational T&E for the Navy, assisting the PM in developing inputs to applicable sections of the TEMP and reviewing or endorsing ACAT IV TEMPs.
- **Force Warfare Systems Engineering Board (FWSEB)** coordinates the technical implementation of transition to open systems in the Automated Information Systems, C^3I, and weapon systems domains. The FWSEB coordinates standards with DoD and other Services, adjudicates standards differences, as needed, and recommends additions and changes to the DoN Center For Architecture and Standards library.

Are You Compliant? Do You Need To Be?

The 1996 memorandum from the USD(A&T) and ASD(C^3I) mandated that the JTA (Version 1.0) was effective immediately for all emerging systems and systems upgrades. Services, Agencies, and other Components were given 90 days to provide a plan outlining their approach for implementing the JTA.

The Navy issued its response in January 1997, and joint working groups were formed to refine JTA guidance, resulting in JTA Version 2.0, published May 26, 1998. However, almost two years after the initial USD(A&T) memo, Navy PMs, who shoulder the ultimate responsibility to make it happen, still seem to have limited knowledge about the JTA.

From the Authors

"How will JTA affect my program?" Good question. JTA has the potential to reduce life-cycle cost. The intent is not to require compliance at any cost, but to make the smart choice, taking into account the status of each program. While JTA may not apply in every case, you need to do an analysis to determine if the long-term benefits might outweigh the short-term pain.

Programs that are just beginning likely would not present a difficult decision. The tough calls have to be made on programs that have recently committed to a specific design and that may not comply with mandated standards.

Perhaps the most important question should be whether you can afford not to play, especially from a technological standpoint. With JTA inevitably the wave of the future, most programs can expect to become assimilated at some point.

From a big-picture perspective, all military forces will need JTA for mutual long-term survival. In a few years, everyone will be connected. Where are the blue forces, the red forces? If your platform is not part of that network and you don't have a common picture of the battlespace, you are going to be at a distinct disadvantage.

If this article didn't answer all your questions about JTA, more information may be obtained through two Web sites: **http://www.jta.itsi.disa.mil/** for the "DoD Joint Technical Architecture" and **http://www.csc.com/jta/** for the "Navy Implementation Plan for the DoD Joint Technical Architecture."

ENDNOTES

1. Memorandum, U.S. Assistant Secretary of Defense for Command, Control, Communications, and Intelligence and Under Secretary of Defense for Acquisition and Technology, Aug. 22, 1996, Subject: "Implementation of the DoD Joint Technical Architecture."

2. U.S. Department of Defense, Joint Technical Architecture (Version 2), May 26, 1998.

3. An electronic backplane bus is the electronic medium used to interconnect a number of circuit boards or electronic assemblies.

4. U.S. Department of the Navy, Implementation Plan for the Department of Defense, Joint Technical Architecture, Jan. 17, 1997.

Secretary Of Defense Appoints
Defense Policy Panel On National Security and the Globalization of Business and Industry

Secretary of Defense William S. Cohen has named retired U.S. Army Brigadier General Peter M. Dawkins to chair a special advisory panel on National Security and the Globalization of Business and Industry.

This Panel will examine security issues and potential security risks resulting from the accelerating globalization and related trends affecting business and industry, including the increased number of U.S.-owned defense contractors with overseas facilities, and the increased foreign ownership of U.S. based suppliers.

The Panel will be drawn from members of the Defense Policy Board, a DoD advisory panel to which Dawkins was appointed earlier this year, as well as from business leaders from such sectors as industry, finance, communications, and database technology.

"This accelerating globalization and transformation of defense-related business," said Cohen, "offers important cost and efficiency advantages to the U.S. defense establishment. At the same time — individually and collectively — these trends raise new issues and potential security risks. General Dawkins is an excellent choice for this important assignment given his background and demonstrated expertise in both national security matters and at the highest level of the business and financial worlds."

Among issues which the Panel will address are those resulting from increasing reliance by U.S. defense firms on overseas suppliers and subcontractors for electronics and computer software; increasing foreign ownership of U.S.-based suppliers; increasing reliance on commercial components in defense equipment; and new business practices such as interconnected commercial and defense databases.

Dawkins currently serves as Chairman and CEO of Diversified Distribution Services, Inc., a division of Travelers Group. Previously, he was Chairman and CEO of Primerica Financial Services, Inc., also a Travelers' subsidiary.

Cohen and Deputy Secretary John Hamre have indicated in recent months that these issues are a top priority for the Department, and they are pursuing several initiatives to ensure that the Department continues to adjust effectively to the new realities of a global economy and to the full range of attendant security implications.

Editor's Note: This information is in the public domain at **http://www.defenselink. mil/news/** on the Internet.

1998 Logistics Reform Focus Day

Seamless Support for the 21st Century Warfighter

NORENE L. BLANCH • COLLIE J. JOHNSON

"The men and women from defense and industry who are this nation's military logisticians, will always be able to ensure that our warfighters can concentrate on their critical task at hand because you, the logisticians, will always be one leap ahead....to equip them; to deploy them; to feed, house, and clothe them; to be their engineers; to be their medical lifeline; to maintain and to sustain their needs as they battle; and when victory is achieved, to bring them and their equipment home."

— Susan Morrisey Livingstone
Oct. 1, 1998
Logistics Reform Focus
Day II
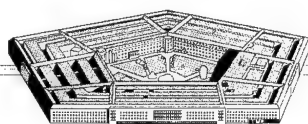
"WE CANNOT AFFORD A LOGISTICS SYSTEM WHOSE EFFECTIVENESS AND COST ARE BASED ON A MASSIVE INFRASTRUCTURE. MORE IMPORTANTLY, WE CANNOT SUPPORT THE FUTURE AGILITY NEEDS OF OUR WARFIGHTERS BASED ON A HEAVY, SLOW LOGISTICS SYSTEM THAT MIGHT CONSTRAIN MILITARY OPTIONS, OR WHOSE BUDGET DEMANDS MIGHT COMPETE WITH NEEDED FORCE MODERNIZATION."

–SUSAN LIVINGSTONE
KEYNOTE SPEAKER,
1998 LOGISTICS REFORM FOCUS DAY

"[LOGISTICS] IS ONE OF MY TOP PRIORITIES PERSONALLY..WE ALL RECOGNIZE WE HAVE A VERY LONG WAY TO GO AND A VERY HARD ROAD AHEAD OF US, BUT THERE'S NO QUESTION IN MY MIND THAT WE'RE UP TO THE CHALLENGE..."

—DR. JACQUES S. GANSLER
UNDER SECRETARY OF EFENSE
(ACQUISITION & TECHNOLOGY)

Blanch is an editor with the Visual Arts and Press Department, Division of College Administration and Services, DSMC. She is a 1996 honor graduate of the Defense Information School (DINFOS) Basic Journalism Course, Fort Meade, Md. Johnson is Managing Editor, Program Manager *magazine, Visual Arts and Press Department, Division of College Administration and Services, DSMC.*

Photos by Richard Mattox

"...OUR SHARED COMMITMENT TO THE HIGHEST LEVELS OF CUSTOMER SERVICE HAS BEEN THE FOUNDATION FOR MAJOR ECONOMIC IMPROVEMENTS IN SUPPLY CHAIN EFFICIENCIES...CLEARLY, IN MOST INDUSTRIES OUR NATIONAL SUPPLY CHAIN CAPABILITIES ARE SECOND TO NONE IN THE WORLD TODAY, AND [ARE] READY TO TAKE US INTO THE 21ST CENTURY."

—ROGER W. KALLOCK
DEPUTY UNDER SECRETARY
OF DEFENSE (LOGISTICS)

he Pentagon Center Courtyard was the scene of the 1998 Logistics Reform Focus Day on Oct. 1, which brought together logisticians and acquisition experts from the Military Services, Defense Agencies, and Industry for their second annual observance. This year's theme, "Seamless Support for the 21st Century Warfighter," focused on Reducing Total Ownership Costs and Integrating Acquisition and Logistics.

A Day of Awareness

In a May 4 memorandum, Under Secretary of Defense (Acquisition & Technology), Dr. Jacques S. Gansler, proclaimed the observance of Logistics Reform Focus Day II as a day "dedicated to increasing the awareness of logistics reform initiatives."

Encouraging Departmental personnel in the local area to turn their attention away from normal operations for one day, Gansler urged them to focus on "understanding and discussing the many ongoing initiatives and innovations intended to increase support to our warfighters."

A Packed Agenda, An Overflow Crowd

An overflow crowd (estimated at over 3,000) turned out to hear DoD-Industry senior logistics executives report on DoD-Industry progress in truly effecting a DoD "Revolution in Military Lo-

gistics." And they had a large agenda it would seem, from which to choose.

Packed with activities, visitors could linger at 38 exhibit booths (three of them live demonstrations); interact with senior logistics executives from DoD-Industry during a senior roundtable discussion, followed by a Q&A session; or choose from a large and diversified selection of breakout sessions throughout the day, on subjects ranging from "Seamless Logistics with Electronic Commerce" to the ongoing "Revolution in Military Logistics."

Deputy Under Secretary of Defense (Logistics), Roger W. Kallock, moderated the Senior Roundtable Discussion. Comprised of high-level officials from the Services, the roundtable also included members from DoD and private industry.

Awardees Take Center Stage

This year's event commenced with opening remarks and a welcome by Kallock, a presentation of the DoD Life Cycle Cost Reduction Awards, and an introduction of the keynote speaker by Gansler.

Kallock, appointed as the Deputy Under Secretary of Defense (Logistics) on June 24, spoke of the primary mission for DoD's logistics workforce — supporting the warfighters.

"We've been spending time analyzing the current environment and developing specific plans to transform it into a system where our customers, the warfighters — our sons and daughters, and some day, their sons and daughters — can have complete confidence that *whatever* they need will be *wherever* they need it."

Following Kallock's remarks, Gansler presented the Life Cycle awards to the following six teams in recognition of their achievement in the development and innovation of life cycle cost reduction.

- Army M157A2 Integrated Product Team
- Air Force Medium Range Air-to-Air Missile Vision 2000 Implementation Team

# Six Teams Recognized at 1998 L

oined by Roger W. Kallock, Deputy Under Secretary of Defense (Logistics), Dr. Jacques S. Gansler, Under Secretary of Defense (Acquisition & Technology), recognized six government and industry teams who have developed and pursued innovative techniques in the active process of looking for new ways to reduce life cycle cost. These teams scored highest among 57 projects that were submitted in response to Dr. Gansler's May 4 call for nominees.

From the 57 projects submitted, one winner was selected from each of the following categories: Army Award, Air Force Award, Navy Award, Marine Corps Award, Defense Agency Award, and Overall DoD-Industry Award.

This marks the third year of the DoD Life Cycle Cost Reduction Awards, which are sponsored by the Office of the Deputy Under Secretary of Defense (Logistics) and a joint committee that includes representatives from all the Services.
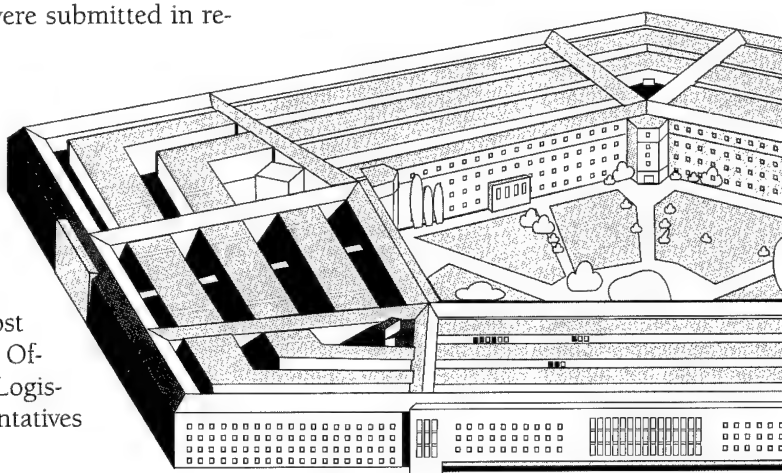
ARMY AWARD — M157A2
INTEGRATED PRODUCT TEAM

OVERALL DOD-INDUSTRY AWARD — LONGBOW MISSILE COST REDUCTION TEAM

gistics Reform Focus Day Ceremony
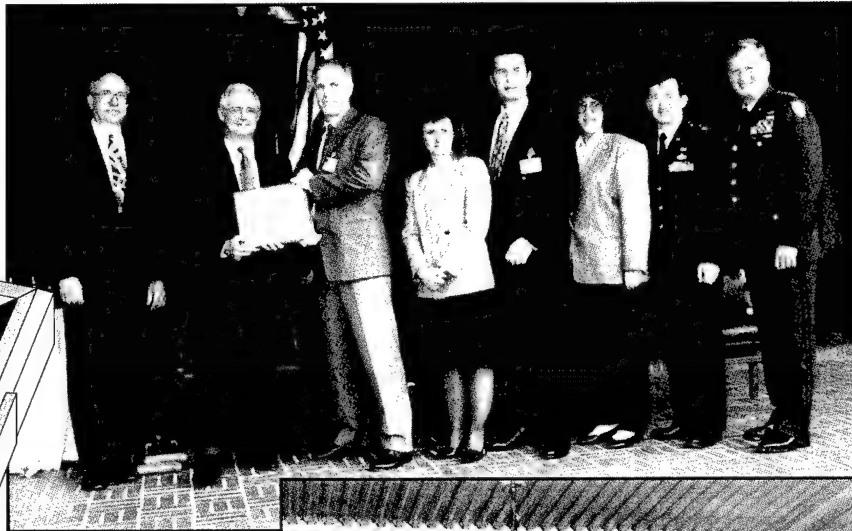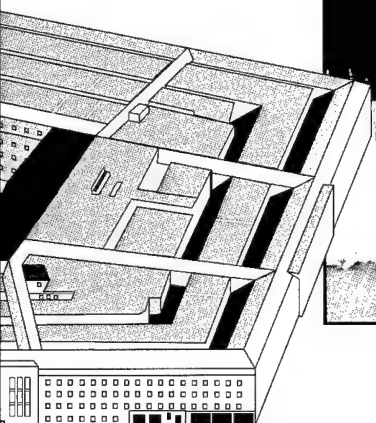
DEFENSE AGENCY AWARD — DEFENSE CONTRACT MANAGEMENT COMMAND GOVERNMENT-INDUSTRY SINGLE PROCESS INITIATIVE INTEGRATED PRODUCT TEAM

NAVY AWARD — NAVAL SURFACE WARFARE CENTER, DAHLGREN DIVISION SHIPBOARD COLLECTIVE PROTECTION TEAM

MARINE CORPS AWARD — B22 OSPREY MARINE CORPS JOINT BELL BOEING-U.S. GOVERNMENT TEAM

AIR FORCE AWARD — AMRAAM VISION 2000 IMPLEMENTATION TEAM

A Day of Meeting, Greeting, Learning for

eputy Under Secretary of Defense (Logistics), Roger W. Kallock, on the job since June 1998, hosted the Oct 1. Observance of Logistics Reform Focus Day. Highly visible throughout the day as host and moderator, he was also an enthusiastic visitor at several industry-government exhibits set up in the Pentagon Center Courtyard.

The Logistics Support by DoD Information Analysis Centers exhibit highlighted the DoD IACs. Their primary mission is to collect, analyze, synthesize, and disseminate worldwide scientific and technical information in clearly defined, specialized fields or subject areas.

The Air Force put its R-TOC (Reduction in Total Ownership Cost) Exhibit on display. Sponsored by the Assistant Secretary of the Air Force (Acquisition), the R-TOC Team is spearheading the Air Force Reduction in Total Ownership Cost (R-TOC) effort to reduce operational support costs and use the savings to enhance modernization efforts while simultaneously meeting the warfighter's needs.

The Army's Logistics Civil Augmentation Program (LOGCAP) exhibit highlighted the LOGCAP mission — to provide logistics, engineering, construction, and services in support of contingency operations worldwide, through the deployment of civilian contractors.

One of three Inventory Control Points for the Defense Logistics Agency, the Defense Supply Center Columbus (DSCC) exhibit highlighted DSCC's role as the nation's largest supplier of weapon systems, spare parts, and end items.

The Defense Information Systems Agency (DISA) exhibit focused on DISA's role in providing command, control, communications, computers, and intelligence support to the nation's warfighters.

Roger Kallock, New Logistics Deputy Secretary

The Defense Industrial Supply Center (DISC) exhibit featured a wide range of information on its customer service and supply support initiatives. DISC's "Logistics Solutions" initiative encourages more flexible arrangements to solving longstanding supply support problems using best commercial business practices.

Logis-Tech sponsored the Environment Stabilization System (ESS®) Exhibit. Awarded a five-year contract, Logis-Tech is working with DoD to field the most reliable, cost-effective dehumidification and controls technology available. DoD views controlled humidity preservation as a maintenance technology and readiness enhancement program to eliminate corrosion.
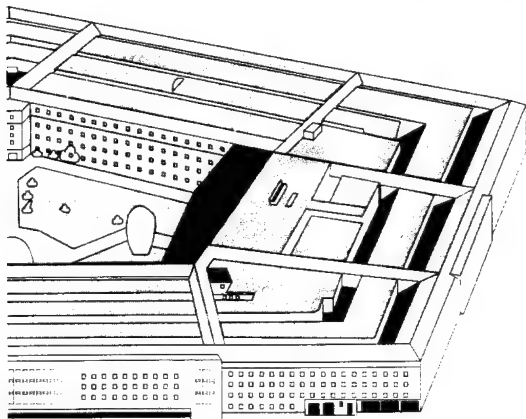
The Navy's Military Sealift Command (MSC) exhibit focused on MSC's role in operating ships for U.S. Navy fleet support; providing special ocean missions support to U.S. government agencies; prepositioning U.S. military supplies and equipment at sea; and providing ocean transportation of defense cargo worldwide in both peacetime and war.

Defense Supply Center Philadelphia, a primary field activity of the Defense Logistics Agency, is a worldwide provider of federal logistical services, a champion of military readiness, and a leader in business innovation, providing food, clothing and textiles, medical supplies and equipment worldwide.

Raytheon's exhibit featured information on the company's logistics reform initiatives as well as its three core business segments: defense and commercial electronics, business aviation and special mission aircraft, and engineering and construction.

The Air Force Research Laboratory (AFRL) exhibit featured the latest Air Force efforts to lead the discovery, development, and timely transition of affordable, integrated technologies that keep the U.S. Air Force the best in the world.

- Defense Logistics Agency Government/Industry Single Process Initiative Integrated Process Team
- Naval Surface Warfare Center, Dahlgren Division Shipboard Collective Protection Team
- Marine Corps B-22 (Osprey) Joint Bell Boeing – U.S. Government Team
- Industry Longbow Missile Cost Reduction Team

Concluding the award ceremony, Kallock congratulated not only the winning teams, but also the other nominees "who were courageous enough to enter into this competition."

He thanked all of them for their hard work over the years and said that it was "indeed inspiring for someone from the private sector to see all the good work that's going on in the Defense Department today."

Gansler Emphasizes Importance of DSB Study

Before introducing the keynote speaker, Gansler stressed the importance of Logistics Reform. He said that recognition of the critical areas for change and improvement is one of his top priorities.

"Many are aware that I chartered this year a Defense Science Board [DSB] summer study on acquisition, particularly stressing the relationship of logistics and the importance of the logistics transformation in order to really change the way we do business in the Department of Defense."

What the DSB concluded, according to Gansler, was that while all of the initiatives DoD has been going through over the last few years are very, very important in their own respect, incremental improvements alone will not totally transform the overall logistics process.

"And that's what's really required – a significant transformation," Gansler states, "if we're going to dramatically change and enhance performance and maximize the cost reductions that come from the logistics area."

Gansler said that he agreed with the Defense Science Board's assessment – that the only way DoD will be able to effect this total change is by "totally reengineering our logistics process."

Keynote Speaker — Susan Morrisey Livingstone

Gansler introduced Susan Morrisey Livingstone as panel chair on the Defense Science Board summer study on logistics transformation.

"Most recently," he told the audience, "Susan led a massive restructuring and strategic planning effort while serving as the vice president of the American Red Cross for Health and Safety Services."

In addition, Livingstone served the Federal Government for more than three years as Assistant Secretary of the Army for Installations, Logistics, and Environment.

"So she comes with a great deal of experience and understanding of what the DoD does, as well as what the commercial world has been doing," said Gansler.

Logisticians — Critical Enablers of Security

Livingstone began by acknowledging her bias toward military logisticians. "I must admit to you up front, my strong belief that logisticians have been, are, and always will be the critical enablers of security and the freedoms that we enjoy today in this country."

Biases confessed, Livingstone went on to speak of what she believes the future will hold for logisticians in the next five to 10 years.

Her participation on the Defense Science Board has given her a unique perspective on what the logistics system needs to focus on in order to achieve the needed changes.

Although Livingstone was unable to discuss the specific recommendations of the Science Board study, she shared the vision of what a transformed logistics system would look like.

The logistics system, according to Livingstone, would:

- Allow for reductions in the demand for logistics "through a total integration of logistics into the R&D and acquisition process."
- Involve new relationships with the private sector, transforming today's "public/private sector partnerships and teams" into the public/private sector "marriage" of tomorrow.
- Accomplish deployments and deliveries "in days or hours, not weeks or months."
- Actualize improvements in logistics system survivability.
- Produce a logistics champion and architect with a focus on unprecedented leadership.

Livingstone also emphasized the need for military logisticians across the Services, Office of the Secretary of Defense, and the logistics Defense Agencies to learn to "speak the same language." This can be done, she believes, by eliminating the practice of formulating different buzzwords within the Services to describe the same logistics function.

"Seamless logistics requires seamless language. And in the same way we speak in the information technology world about a common operating environment, in the logistics world we need a common operating language." With this change, she asserts, "Military logistics would function a heck of a lot better."

Livingstone concluded her remarks by reminding the logisticians that, even in the midst of a changing logistics system, "The men and women from defense and industry who are this nation's military logisticians, will always be able to ensure that our warfighters can concentrate on their critical task at hand because you, the logisticians, will always be one leap ahead...to equip them; to deploy them; to feed, house, and clothe them; to be their engineers; to be their medical lifeline; to maintain and to sustain their needs as they battle; and when victory is achieved, to bring them and their equipment home."

nder the auspices of the Defense Acquisition Workforce Improvement Act (DAWIA), Defense Systems Management College (DSMC) course directors have administered over 20 Intermediate Systems Acquisition Course (ISAC) equivalency examinations since 1994 to DoD personnel seeking course validation. ISAC, or ACQ 201, is a certified Defense Acquisition University (DAU) Level II course offering, which meets mandatory or desired training requirements for DAWIA certification in six of 11 acquisition career fields. Over 300 members of the acquisition workforce have passed the exam.

In Fiscal Year 1999 (FY99) ACQ 201 will be offered at the main Fort Belvoir, Va., campus as well as our four DSMC Regional Centers. Equivalency examinations consist of two parts and are conducted over a two-day period.

Day 1

On the morning of Day 1, the on-site director fields questions from the examinees. In the afternoon, examinees complete Part I of the examination, consisting of 100 multiple-choice questions. At the end of Day 1, course directors post test scores; those examinees receiving a passing score of 70 percent or more may return on Day 2 for Part II.

Day 2

Beginning on the morning of Day 2, Part II consists of 10 essay questions from a choice of 12 possibilities. Part II will be collected on-site and mailed to the ACQ 201 course director, who will grade the essay portion and award diplomas to those who achieve a 70 percent or above passing score.

Success rates for the examinees are quite high. In FY 98 testing, 75 percent of all examinees achieved a pass rate for the Part I examinations, and of those who went on to complete Part II of the examination, 80 percent attained a passing score.

Please note that a nominal number of textbooks are available at the DSMC Regional Centers for study and preparation prior to the examination. If you are interested in taking the ACQ 201 equivalency examination, please first contact your agency's on-site training and education coordinator, who will then facilitate your participation in the examination with the appropriate ACQ 201 course director/DSMC Regional Center director.

Should you have any further questions, please contact Air Force Maj. Art Greenlee, FD-AP:

Commercial:	(703) 805-4987
DSN:	655-4987
E-mail:	**greenlee_arthur@dsmc.dsm.mil**

Date	Location	Organization/Registrar
December 9-10	Wright-Patterson AFB, Ohio	Air Force Institute of Technology Comm: (937) 255-7777, ext. 3284 DSN: 785-7777, ext. 3284
January 13-14	Naval Air Station Patuxent River, Md.	Naval Center for Acquisition Training Comm: (301) 342-1081 DSN: 342-1081
February 9-10	Fort Monmouth, N.J.	DSMC Mid-Atlantic Region Comm: (908) 532-5122 DSN: 992-5122
February 23-24	Hanscom AFB, Mass.	DSMC Eastern Region Comm: (871) 377-3593 DSN: 788-9045
March 30-31	Fort Belvoir, Va.	DSMC Main Campus Comm: (703) 805-4987 DSN: 655-4987
April 13-14	Redstone Arsenal, Ala.	DSMC Southern Region Comm: (205) 842-9045 DSN: 788-9045
June 15-16	Los Angeles AFB, Calif.	DSMC Western Region Comm: (310) 363-8716 DSN: 833-8716

National Cultures and Practices

RICHARD KWATNOSKI

his article presents a unique database reflecting the views of many experienced government participants in international cooperative programs. While other writings on this subject reflect the views of only a single expert, or are related to intercultural business and personal relationships, our analysis focuses on government-to-government project relationships between the United States Department of Defense and the British, German, and French Ministries of Defense.

The Data Gathering Process

The International Defense Educational Arrangement (IDEA) is an arrangement between acquisition educational institutions in the United States, United Kingdom, Germany, and France. Those eligible to attend IDEA-sponsored seminars are Defense Department/Ministry and defense industry employees from the four IDEA nations who are actively engaged in international defense acquisition programs.

From this audience of acquisition professionals, the IDEA conducted surveys and gathered the data upon which this article bases its observations. Survey respondents came from two forums: an IDEA-sponsored acquisition/procurement seminar held in July of 1996 at the Royal Military College of Science in Shrivenham, United Kingdom; and another held in July of 1997 at the Federal Academy of Defense Administration and Military Technology in Mannheim, Germany.[1,2] (The Defense Systems Management College and the Centre des Hautes Études de l'Armement are the U.S. and French member institutions, respectively.)

During the seminars, the IDEA conducted workshops to gather data on the cultural interactions and national
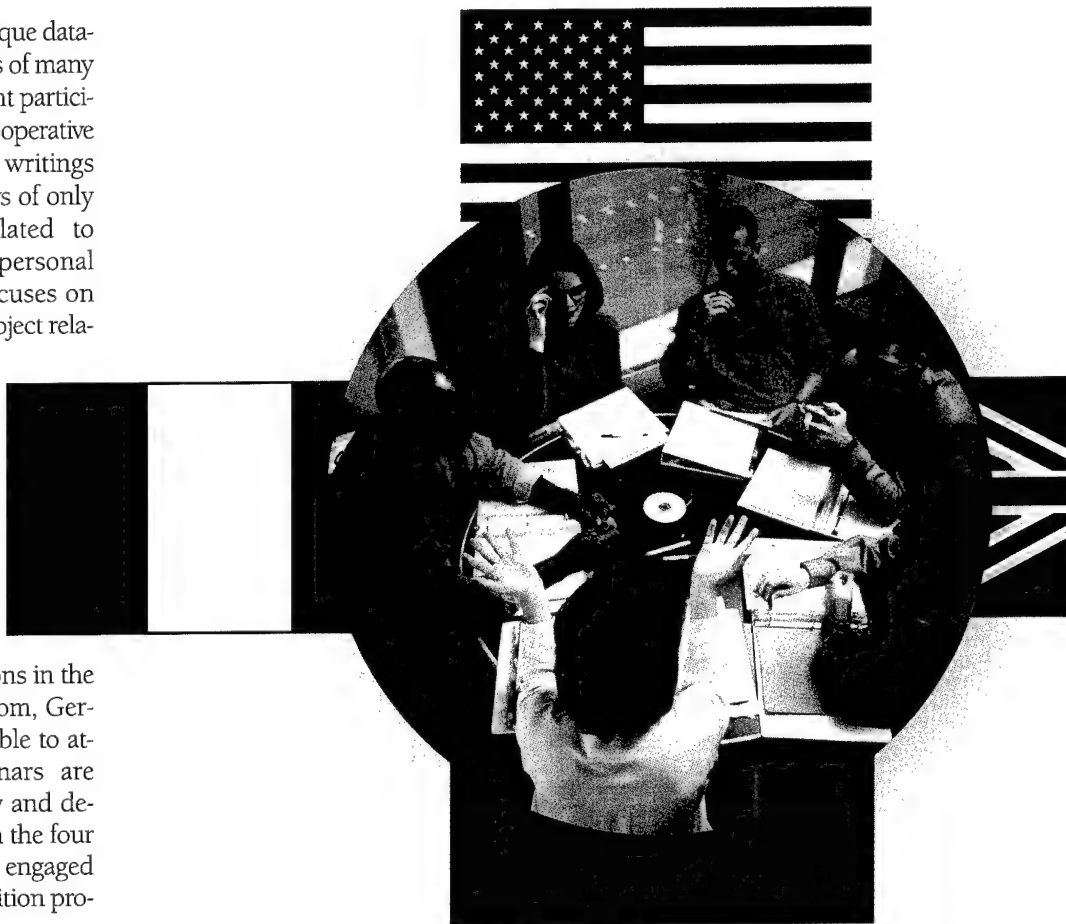
Kwatnoski is the Director of International Acquisition Courses, Executive and International Department, School of Program Management Division, DSMC. The author's intent, in this article, is to emphasize the usefulness of information gathered during two international seminars, not to offend any participating nation by highlighting differences of viewpoint. There was, however, an attempt to group similar results to state unanimous, majority, or significant viewpoints. The user of this information is cautioned regarding definite conclusions because of the small sample sizes available for the analysis.

practices their acquisition professionals viewed as either facilitators or barriers to international cooperative projects, both transatlantic and intra-European.

While this article presents all the results, its primary focus is on the transatlantic relationships. Here we present the intra-European relationships for completeness and comparison. While we made every attempt to examine the cultural interactions and national practices of the four nations, there was insufficient British participation to obtain an adequate amount of data reflecting their views.

Analyzing the Results

The data gathering was essentially identical during both IDEA Seminar workshops. Facilitators segregated seminar participants into national teams and gave them identical worksheets to fill out. These worksheets asked participants to identify the nation that they worked with most frequently, and to identify the cultural aspects and national practices associated with that nation that helped or hindered cooperation in international acquisition projects.

The worksheets were then grouped by responding nation and analyzed by the IDEA. During the analysis effort, IDEA took every precaution to retain the same wording as found on the original worksheets. In many cases the exact meaning of comments submitted by survey respondents is not clear, but subsequent elaboration and clarification proved impractical. The results are, therefore, unfiltered and quite candid, and should be useful to those contemplating future cooperation with the IDEA participating nations that responded. Figure 1 summarizes the data sets obtained by IDEA during the two seminars.

Working With the United Kingdom from the U.S. Perspective

CULTURAL DIFFERENCES

Facilitators

One answer obviously prevails — commonality of the language. However, a

> The results are unfiltered and quite candid, and should be useful to those contemplating future cooperation with the IDEA participating nations that responded.

third of the Americans from the 1996 seminar mentioned this as the biggest barrier to working with the British. This might be explained by a belief at first that there is understanding with a com-

mon language, and a realization later that there was misunderstanding over differing meaning of the words in British and American usage.

Survey participants expressed the view that the British and Americans share a similar background, heritage and history, as well as an alliance, both formal and historical. Americans viewed the British as sincere, hospitable, and friendly.

Additional cultural characteristics mentioned were diplomacy and clarity of expression, an openness and willingness to explain, along with a sharing of lessons learned. Logical, sensible decision making without being hierarchical in communications was seen as a facilitator as well.

Barriers

The answers that prevailed during the 1997 seminar referred to the British maintenance of place in their social structure, reserved and formal behavior, an island-fortress mentality, excessive national pride, and the time zone difference.

In 1996, two answers prevailed: the differences in the language and a work ethic perceived to be lesser than that of Americans. No other answer was mentioned more than once.

FIGURE 1.1 — Sets Obtained from IDEA Seminars

Responding Nation	Nation Addressed	1996 Seminar	1997 Seminar	Total Number
United States	United Kingdom	X	X	23
Germany	X	X	12	
France		X	X	6
Germany	United States	X	X	9
France	X	X	5	
United Kingdom	X	X	5	
France	United States		X	Group Response
			Response	
France	X	X	6	
United Kingdom	X	X	3 + Group Response	

Nation		Facilitators	Barriers
United Kingdom	Cultural Differences	Commonality of language Similar Heritage	Differences in language Lesser work ethic Social structure Reserved, formal behavior
	National Practices	Similar acquisition practices. (e.g. competition) Desire to cooperate with U.S Necessity for work share Competent acquisition workforce Stability of people and organization	Budget: process and fiscal conservatism Necessity for work share Subjective procurement procedures
Germany	Cultural Differences	Work ethic Speaking German	Language National pride Belief in technical superiority
	National Practices	Acceptance of English as international language Stability of funding Desire to cooperate with U.S.	Organizational structure and bureaucracy Priority of employment and European cooperation
France	Cultural Differences	Expertise in hosting meetings and social events	Reluctance to speak English at meetings Lengthy response times Lengthy, formal lunches
	National Practices	Openness	Bureaucracy Very formal meetings Long decision–making cycle Government ownership of defense industry

There was a view of a lesser sense of urgency, commitment, and responsibility. Americans viewed the British as occasionally indirect, evasive, distanced, conservative, reserved, superior in attitude, distrustful of strangers, and avoiding of confrontation.

Additional cultural characteristics mentioned were a British propensity to be very formal and regimented, with a reliance on procedure.

NATIONAL PRACTICES

Facilitators
Unlike the cultural aspects, there was little consensus on the national practices favorable to working with the United Kingdom. Two aspects were mentioned twice, each during the 1997 seminar: similar acquisition practices, especially with respect to competition in contracting, and a desire to cooperate with the United States.

During the 1996 seminar, survey respondents mentioned two aspects, two or three times: a competent, well-educated acquisition workforce, and the stability of people and organizations associated with a project. A number of aspects were mentioned once, and some sound more like cultural aspects, rather than national practices.

There was recognition of the long-standing relationship between the two nations, high-level communication, and similarity of practices and interests. Other aspects viewed as facilitating cooperation were management's long-term planning and project focus, reduced budgets as a driver, emphasis on "value for money," the government-industry relationship, similarity of contract law, a straightforward policy on cooperation, and minimal Parliamentary oversight.

Also mentioned were Scientist & Engineer Exchanges and increasing standardization [with the United States].

Barriers
Consensus from both seminars was that the biggest barrier was related to budget considerations, either the process or fiscal conservatism. The necessity for work shares and subjective procurement procedures was also mentioned. The holiday schedule and emphasis on job protection in the United Kingdom were both mentioned.

A list of differences leading to barriers includes policies, procedures, national interests, requirements, fiscal year, standard contract clauses, the government-industry relationship, and management structure. Also mentioned were fear of losing capability, a strong, unmotivated Civil Service, centralized power and authority, an ad hoc approach to identifying cooperative projects, and a willingness to accept second best.

Figure 2 summarizes U.S. views on working with the United Kingdom.

Working with Germany from the U.S. Perspective
CULTURAL DIFFERENCES
Facilitators
The German work ethic stood out as the greatest facilitator from the American perspective from the 1997 seminar. In 1996, the ability for an American to speak German stood out as the greatest facilitator for working with Germans. Also noted were German politeness, enthusiasm, and punctuality, as well as the Germans seriousness of purpose, reliability of

commitment, and mutual respect and understanding.

Barriers
The overwhelming answer was the language barrier. Also mentioned to a lesser degree was the German national pride, rigid belief in their technical superiority, and distance and time zone differences. Survey participants viewed the Germans as conservative, rigid, inflexible, stubborn, formal, and legalistic. Also noted as a barrier was the American lack of understanding of the German culture.

National Practices
Facilitators
Favorable to cooperation between the United States and Germany was the German acceptance of the use of English as the international language. While this may be true, caution must be exercised because of the high emphasis placed on problems related to the language barrier under cultural differences.

Mentioned with the same frequency were the stability of German funding and their desire to work with the United States. Also viewed as favorable to cooperation between the United States and Germany were a history of cooperation, a similar acquisition process, and an understanding of national practices. Also, the German attention to detail was viewed as a facilitator.

Barriers
Survey participants viewed the German organizational structure (Ministry of Defense versus Central Procurement Organization) as a barrier to cooperation, along with barriers associated with German bureaucracy and decision making. The strong relationship between government-industry, and favored contractors was mentioned as well during the 1997 seminar. In 1996 barriers most often noted were the different priorities of the Germans regarding employment and European cooperation.

The Americans viewed as problem areas for cooperation the different budget cycle, timetables, and a hierarchical, centralized authority. Also mentioned was a perception that the Germans had a narrow focus.

Figure 2 summarizes views on working with Germany from the U.S. perspective.

Working with France from the U.S. Perspective
Cultural Differences
Facilitators
During the 1997 seminar, only the French expertise in hosting meetings and social events was mentioned most often. In 1996 nothing specific with regard to French and American cultural differences was mentioned as favorable to cooperation.

Barriers
The barrier mentioned unanimously during the 1997 seminar was that the French were reluctant to speak English during meetings with Americans. Also viewed as barriers were lengthy response times and the French practice of lengthy, formal lunches. The latter point was mentioned with frequency during both seminars.

The Americans noted that the French expected too much similarity, and did not appreciate [the difficulties in dealing with] the U.S. bureaucracy. Viewed as a barrier was the French perception that the United States never finishes international programs.

National Practices
Facilitators
Only one area was mentioned more than once. That was an acknowledgement of a French openness, but in selected areas and only once an individual knew their ways. Nothing else was mentioned more than once. However, mentioned were the good relationship between the United States and French military, scientist and engineer exchanges, and a desire for cooperation. The Americans also viewed the French as flexible, and as having shorter staffing times.

Barriers
The main barrier was seen as the French bureaucracy, very formal meetings, and a long decision-making cycle. Also hindering cooperation between France and the United States was the government ownership of French defense industry, and the resultant requirement for offset

arrangements with relatively expensive French companies.

Survey respondents also saw the French as less than forthcoming on everything and difficult to obtain answers from. However, although survey respondents viewed this as a barrier, an equivalent number of respondents viewed French openness as a facilitator.

Also viewed as a barrier during the 1996 seminar was the insistence on speaking French when all spoke English. Mentioned also was an American perception that the French professional development may be too focused, thereby sometimes missing the big picture. Survey respondents also viewed a French lack of understanding of U.S. funding profiles as a barrier.

Figure 2 summarizes views on working with France from the U.S. perspective.

Working with the United States from the German Perspective
Cultural Differences
Facilitators
Half the German respondents during the 1997 seminar left this blank or replied Not Applicable [N/A]. Mentioned once was American tolerance and their predominately European cultural origin. In 1996 the Germans viewed the Americans as open-minded and easygoing with U.S. postures [positions]. Also mentioned was the pragmatic approach taken by Americans, rather than being focused on principles.

Barriers
Half the German respondents again left this blank or replied N/A during the 1997 seminar, while half also mentioned the language barrier. The German survey respondents mentioned the American lack of language skills most frequently as a barrier during the 1996 seminar as well. Mentioned once each was a low interest by Americans in European politics, and the American leadership mentality.

Mentioned as a barrier in 1996 was the "U.S.-only" mentality. Also mentioned as a barrier was "Less historical back-

FIGURE 3. ... of German and French Views on Working ...

		Facilitators	Barriers
German Views on Working With U.S.	Cultural Differences	Tolerance Similar cultural origin Open-minded Easygoing with positions	Language U.S.- only mentality Low interest in Europe
	National Practices	Desire to leverage resources Interest in high technology Common requirements Structured organization Fairness and openness	Regulations: Too rigid (e.g. The FAR), numerous and changing frequently Inability to adopt other national practices Unreasonable security controls Buy-American attitude
French Views on Working With U.S	Cultural Differences	Convivial nature Good technical objectivity Capacity for self-criticism	Variable national relationship: strong to weak Limited mutual confidence
	National Practices	Ability to afford new programs Strong technical approach Willingness to share information	Tension between selling armaments and armaments cooperation Complex organizations Protectionist practices

ground." [Here, we suggest no interpretation as to the survey respondent's meaning or intent].

Facilitators

Mentioned twice was the American desire to leverage resources through cooperative projects. Mentioned once each was an interest in high technology, common requirements, clearly structured organization, fairness and openness, and the ability to overcome national interests and be serious about cooperation. Also mentioned was an American understanding of the problems of Democratic Parliamentary machinery.

Barriers

The Germans mentioned a number of barriers when working with the United States. From the data analyses, a consensus emerged regarding U.S. regulations being rigid (specifically mentioning the Federal Acquisition Regulations), too numerous, and changing too frequently.

Also mentioned by the German survey respondents were indications of a certain rigidity by the United States in adopting other national regulations or practices, unreasonable security controls, and a buy-American attitude.

Other items mentioned were the different time schedules, budget cycles, financial and legal systems, lack of funds and support from superiors. Also mentioned was that the United States considers cooperation after it is too late.

Figure 3 summarizes views on working with the United States from the German perspective.

Working with the United States from the French Perspective

Facilitators

The French saw Americans as convivial, with good technical objectivity, and a capacity for self-criticism.

Barriers

The French mentioned that the relationship with the United States varies from strong to weak, and that limited mutual confidence exists between the two nations.

Facilitators

The French mentioned the American ability to afford new programs, a strong technical approach, and a willingness to share information, even when the United States has the majority of the information.

Barriers

The French observed a tension between selling armaments and armaments cooperation. They mentioned also the complex U.S. organization and protectionist practices.

Figure 3 summarizes views on working with the United States from the French perspective.

Intra-European View — Working with the United Kingdom from the German Perspective

Facilitators

Most of the German respondents left this blank. One replied that the British were polite and helpful.

Barriers

Nearly all the respondents mentioned the language barrier. Mentioned once were British formality, and different work habits and education.

Facilitators

Mentioned once each was meeting at high levels, common management agencies, and cooperative negotiations.

Barriers

Nationalism was mentioned twice, with no elaboration of specifics. Also mentioned were competition, leadership among partners, strong procedures, different regulations, and slow decisions.

Figure 4 summarizes working with the United Kingdom from the German perspective.

Intra-European View – Working with the French from the German Perspective

FACILITATORS

Several Germans mentioned that the French were open to new solutions and creative in problem solving. Also mentioned were knowledge of the German language, personal contacts, similar European culture, and hospitality.

Barriers

Several mentioned the language barrier. Mentioned once was different professional training, dependency of hierarchy, and long lunches.

NATIONAL PRACTICES

Facilitators

Mentioned once each was integrated teams, similar professional backgrounds, joint training and seminars, the French Acquisition Corps, cooperation between the military and industry, small project management offices, and well-defined objectives.

Barriers

The overwhelming response was the French bureaucratic process and decision making. Also mentioned once each was different fiscal years, lack of clear interest in cooperation, a national orientation, and the relation between government and industry.

Figure 4 summarizes working with the French from the German perspective.

Intra-European View – Working With the United Kingdom from the French Perspective

CULTURAL DIFFERENCES

Facilitators

French survey respondents viewed the British practice of putting everything in writing as helpful with the language barrier. Another observation was that the British were frank and efficient. [We leave the interpretation of the comment about "good French food and Paris" to the reader.]

Barriers

Somewhat surprising was that a comment viewed by the French as a "Facilitator" also surfaced as a barrier: the British practice of putting everything in writing. Also mentioned was a British propensity to achieve perfection before making a decision.

NATIONAL PRACTICES

Facilitators

Mentioned as favorable to cooperation were the many years of cooperation between the two nations, as well as similar size of the countries and defense industries. Also mentioned were agreement of legal advisors in broad terms, and the lack of great differences in procurement rules and regulations. Mentioned as well were the British budget planning, delegation of power, and speed at applying a decision once it is reached.

The French also mentioned the similar technological level in most fields, and a willingness to share technology. Also mentioned was the British capability to make decisions at intermediate levels.

Barriers

British practices viewed as barriers were their Equipment Approval Committee (EAC) process, adherence to the principle of competition without considering market reality, and different administrative procedures and contract requirements (e.g., penalties, advance payments, and competition).

The French observed that the United Kingdom seemed to have "one foot in Europe; one foot in the United States." Also mentioned was the best-value-for-money approach with unpredictable consequences, as well as a complex, long-term approach to cooperation.

Figure 4 summarizes working with the British from the French perspective.

Intra-European View – Working with the Germans from the French Perspective

CULTURAL DIFFERENCES

Facilitators

French survey respondents viewed the Germans as serious about work, clear, orderly, and possessing initiative. Also mentioned were the similar sizes and proximity of the two countries, a common admiration, and a similar vision of the future.

Barriers

Consensus from the respondents was that the Germans were rigid in their dealings with the French. Also mentioned was a different view of authority and responsibility, and fragmented decision making.

Several other items surfaced, but only once each. The French observed a difficulty in establishing trust because of history. Mentioned also were certain differences: German consensus versus French centralized decision making, importance of formal rules versus informal relationships, and the necessity of order versus changing priorities. Also mentioned was the language difference.

NATIONAL PRACTICES

Facilitators

The French mentioned their long partnership in armaments cooperation with the Germans, common PC software, and a common view on the importance of reports. The French also observed a strong political will to cooperate.

Also mentioned were that the Germans were committed to a project when their Parliament approved it, and decisions by Parliament were rarely changed.

Barriers

The French cited meddling by, and the difficulty of obtaining approval of, a project from the German Parliament. Also mentioned were a rigid adherence to national law, difficulty in understanding who is in charge, and a lack of funds because of the European Fighter Aircraft (EFA) priority.

Figure 4 summarizes working with the Germans from the French perspective.

Usefulness Is in the Eye of the Beholder

While this analysis provides potentially useful information for dealing with our major cooperative acquisition partners, certain key issues seem to prevail in most of our international dealings with the United Kingdom, Germany, and France.

FIGURE 4. Summary of Common and Expected Values on Working With Different European Counterparts

Nation	Types	Facilitators	Barriers
German Views on Working With U.K.	Cultural Differences	Insufficient Data	Language
	National Practices	Insufficient Data	Nationalism
German Views on Working With France	Cultural Differences	Open to new solutions Creative in problem solving	Language
	National Practices	Insufficient Data	Bureaucratic process Decision making funding
French Views on Working With U.K.	Cultural Differences	Putting everything in writing Frankness Efficiency	Putting everything in writing Language Propensity to achieve perfection before making a decision
	National Practices	History of cooperation Similar size of countries, defense industries and technological levels Agreement of legal advisors in broad terms Similar procurement rules and regulations Budget planning Speed at applying decisions Willingness to share technology Ability to make decisions at intermediate levels	EAC Process Competition principles Different administrative procedures and contract requirements "One foot in Europe; One foot in the U.S." Best value for money principle Complex, long-term approach to cooperation
French Views on Working With Germany	Cultural Differences	Serious about work Clear Orderly Possessing initiative Similar size and proximity Common admiration Similar vision of the future	Rigid Different view of authority and responsibility Fragmented decision making
	National Practices	Long partnership in cooperation Common PC software Importance of reports Political will to cooperate Commitment	German Parliament Rigid adherence to law Understanding who is in charge Lack of funds due to EFA

Particular attention to the following key issues should significantly improve armaments cooperation with our European allies:

- Language

- Work Ethic

- Funding/Budget

- Bureaucracy and Organizational Structure

- Government–Industry Relationships

- Response Times

- Formalities

- Regulations and Controls

- Armaments Cooperation vs. Arms Sales

- Protectionism

- Rigidity

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Army's MANPRINT Puts Humans on Par With Technology

JIM GARAMONE

WEST PALM BEACH, Fla. Have you ever changed the oil in your car and wondered why the engineers made it so darned hard to do?

It's because the designers didn't consider the man-machine interface. Essentially, they never thought about the real people down the line who would have to use the vehicle and maintain it.

An Army program called MANPRINT, for Manpower and Personnel Integration, tries to ensure the soldier is the focus when developing weapon systems. The Deputy Under Secretary of Defense for Acquisition Reform and senior officers from the other Services recently saw how helpful MANPRINT can be to them.

The Army has demonstrated that embedding human factors at the start will make a better weapon system and save billions of dollars over its life cycle. One example is the Comanche helicopter, now being test flown here by prime contractor Boeing-Sikorsky.

The RAH-66 Comanche has used MANPRINT since its inception in the late 1980s as the Army's experimental light helicopter program. Officials estimate the Service will avoid $3.29 billion in costs over the Comanche fleet's expected 20-year service life through MANPRINT.

When I first heard about this program, I thought it was just another touchy-feely program," said Todd A. Weiler, Principal Deputy Assistant Secretary of the Army for Manpower and Reserve Affairs. "Then I went down to see the aircraft and hear how this program took advantage of MANPRINT principles. I was a convert. We've had significant savings on the Comanche program. Imagine what savings we could generate if this program were DoD-wide."

MANPRINT came about following a number of Army procurement deficiencies. The first version of the Stinger anti-aircraft missile took too long to aim and fire, and short soldiers couldn't use it because the back blast would have killed them.

"By the time you went through all the steps, your target was five miles behind you," said Army Lt. Col. Mitch Howell, a MANPRINT expert with the Army Research Laboratory. "These deficiencies were corrected in later versions."

Dragon anti-tank missile users encountered similar problems. Infantrymen had to assume a weird position to fire it and then stay put to guide the dawdling missile. Meanwhile, its huge back blast of smoke and flame marked users like a bull's-eye. Anyone with an AK-47 rifle could kill the soldier before the Dragon hit home.

"The problem was the designers would build and test systems in the lab and get 90-percent success rates," Howell said. "Then they'd take the system out to the field, give it to a soldier surrounded by

RAH-66 COMANCHE. THE U.S. ARMY'S NEW AVIATION MODERNIZATION PLAN HAS AS ITS CENTERPIECE THE BOEING-SIKORSKY RAH-66 COMANCHE ARMED RECONNAISSANCE HELICOPTER. Photo courtesy The Boeing Company

RELEASED   July 31, 1998

smoke and dirt and people trying to kill him, and it wouldn't have close to the same success rate.

"There wasn't enough money to do it right the first time, but there was enough to modify the system after it didn't work," he said.

From these setbacks grew MANPRINT. The bottom line to many weapon system problems seemed to be the man-machine interface. Under MANPRINT, the user is an integral part of systems design.

In the Comanche program, MANPRINT means a more robust, more lethal helicopter that requires fewer people to maintain it. It also means Comanche costs less and flies more — it will require 2.6 hours of maintenance for every flight hour. The closest rival to that is the Kiowa Warrior, which needs about five hours of maintenance for every flight hour. The Army requires the Comanche to fly more than six hours a day. Current aircraft, for comparison, can fly just over two.

"Too often in the past, we looked at how much it took to build a weapon system as the 'cost' of the system," said Hal Booher, former director of the Army MANPRINT office at Aberdeen Proving Grounds, Md. "But the cost includes money needed after the system is fielded.

"How many people will it take to maintain [the system]? How much time will those people take in maintaining it? Do the areas they need to be [in] have easy access?" Booher asked. Planners also consider the tools and skills ground crews need, and their work locations and working conditions.

Comanche's MANPRINT planners specifically addressed all these questions and others. For instance, besides needing less maintenance and smaller ground crews, Comanche is designed for easy access to all service areas. Further, ground crews probably won't need appreciably higher skills than other aircraft crews, and in some cases, they might not need as much.

The important aspect of any weapon system, however, is how well people fight using it. MANPRINT officials wanted to make the aircraft easier for pilots.

"We didn't want the pilot concerned with flying the aircraft," said test pilot Nick Lappos of Boeing-Sikorsky. "We want the Comanche to be easy to fly so the pilot can concentrate on the mission. The pilot of the Comanche is a soldier first and a pilot second. We aimed to reduce the 'housekeeping' a pilot has to do and beef up the tasks directly related to combat."

The aircraft flies like a dream, Lappos said. It can dive at angles in excess of 70 degrees. Comanche can fly sideways at more than 75 knots — nearly the top forward speed of the OH-58 Kiowa it will replace.

The tail rotor is enclosed, making it safer if the chopper comes into contact with trees, for example. Comanche has a computerized feature that makes the "pop-up" maneuver safer in confined areas. Pilots doing the maneuver pop up from cover, view the area ahead, and quickly drop back. The computer helps them descend to the same spot — so if they see a target, they can pop up again already positioned to attack.

"This is a big deal," said Maj. Gen. Tom Garrett, Commander, Total Army Personnel Command, and an aviator. "Popping up out of a small clearing at night, then getting back into it is [one of the] most difficult maneuvers. That's when you put your rotors into the trees."

Similar capabilities dictated by the MANPRINT program exist in all areas of the Comanche design, from an advanced caution advisory system to on-board computer monitoring of the system's condition and maintenance history, Lappos said.

The Army program manager has incorporated MANPRINT in all development decisions. Further, an Army Training and Doctrine Command team has worked with the program manager and contractor, Boeing-Sikorsky, on MANPRINT issues. This includes assigning Army pilots and maintenance people to the project to get input from people in the field.

"You get an NCO with 16 years of turning wrenches on helicopters, and you have a wealth of expertise," said Chief Warrant Officer Pat King, a

TRADOC team member. "He's been in the field changing black boxes on an aircraft while holding a flashlight in his mouth, and he knows whether that dog will hunt."

Comanche is an outstanding weapon system, thanks to the emphasis on MANPRINT, said Army's Weiler. "There is no aircraft on the horizon that will be able to touch the Comanche," said Weiler, who flew Cobra attack helicopters during Desert Storm. "aircraft is a full generation ahead of anything on the drawing boards."

This brand of success hasn't gone unnoticed. The British adopted the MANPRINT program for their entire defense ministry, said Howell of the Army Research Lab. "They hold yearly symposia to ensure all their weapon systems follow MAN-PRINT principles," he said. "They even used our colors and graphics, but they changed the name to 'Human Factors Integration' in 1993."

The Army recently strengthened MANPRINT to help reduce the total operating costs of weapon systems. It even established a general officer steering committee, chaired by the vice chief of staff, to institutionalize MANPRINT.

"We want this to become an integral part of every acquisition," Weiler said. "It's too important to be dependent on personalities."

Editor's Note: This information is in the public domain at **http://www.dtic.mil/ afps/news** on the Internet.

MANPRINT's Blueprint

The Army Manpower and Personnel Integration program, MANPRINT for short, considers the human-machine interface in seven areas during the creation of a new weapon system.

The areas, called domains, are related, and all must be considered. The first six come from the first days of the program in the mid-1980s.

- Personnel Capabilities. This deals with the knowledge and physical abilities soldiers need to train on a weapon system and to operate, maintain and sustain it.

- Manpower. This involves the number of persons required or potentially available to operate, maintain and sustain, and to provide training for the system.

- Training. This deals with formal and on-the-job instruction required so users have the essential job skills, knowledge, values, and attitudes.

- Human Factors Engineering. This integrates people into system definition, design, development, and evaluation.

- System Safety. This considers design features and operating characteristics to reduce potential injuries caused by human or machine errors and failures.

- Health Hazards. This takes into account characteristics such as loud noise, chemical and biological substances, and extreme temperatures and radiation that pose risks of injury or death.

- Soldier Survivability. Added in 1994, this stems from Desert Storm, where U.S. forces experienced many friendly fire casualties. Designers now, for instance, contend with weapon ranges that exceed soldiers' ability to discern friend from foe. Every decision in this domain involves technical aspects that affect the ultimate human decision to fire.

"Up and Running"

NMD Integrated System — More Than Just Another DoD Procurement Effort

MAJ. GEN. JOE COSUMANO, JR., U.S. ARMY
LT. COL. CRAIG MACALLISTER, U.S. ARMY • CLIFFORD REEVES
LT. COL. DONALD KEITH, U.S. ARMY (RET)

"There is one NMD Program and one NMD Team. That was my philosophy when I stood up the Joint Program Office for the National Missile Defense Program, within the Ballistic Missile Defense Organization and assumed the leadership position of "Program Manager." That is the only philosophy that will pull together all of the diverse parties, Services, and Agencies required to successfully develop and field a National Missile Defense."

–Maj. Gen. Joe Cosumano, Jr., U.S. Army

Political and intelligence analysts normally agree that when it comes to a "National Missile Defense"(NMD), there is a genuine level of uncertainty as to the need for, or timing of, an "active" defense capability to protect the United States. Defense analysts now believe that the United States of America possesses the technical capability to provide the national homeland, including all 50 states, with limited protection against ballistic missile attack.

This defensive capability stems from DoD's heritage of past and current technology programs that support the present-day defense analyses and conclusions. The most stressing question in the whole NMD equation is how long would it take to build and deploy an effective Anti Ballistic Missile (ABM) capability. This crucial question, along with unknown technical challenges and limits of an *undefined* threat, launched *at an imprecise time and date* in the future, makes the NMD System a relatively high-risk program.

Categorizing and Countering the Threat

The Ballistic Missile Defense Organization (BMDO), in coordination with the User (U.S. Space Command), categorized the threat of ballistic missile attack against the United States and examined available national resources (Service-led BMDO technology programs) to not only counter the threat of ballistic missile attack, but also address known risk factors.

When that analysis was complete, BMDO documented ABM performance requirements (the required technology) over time that could counter the entire range of expected threats. These needs or requirements became NMD program benchmarks.

As a result of this analytic effort, an NMD strategy and accompanying plans emerged, which focused on achieving the appropriate national defensive capability, with the required ABM performance, at the time needed in the future.

As an output from this effort, we developed three sets (Capability 1 through 3) of performance specifications (with virtually hundreds of possibilities for potential upgrade) in a non-traditional approach. This unique approach suspended the traditional DoD milestones for production and deployment until "the threat" triggered a need. Only after a "threat-based need" arose would Congress and DoD provide the resources to proceed with an accelerated, yet traditional production and fielding program.

Integrated "Single System" And JPO

Given this concept, we then focused on transitioning to an acquisition infrastructure that would accommodate the NMD's program objectives from a "systems" approach. Using several lessons regarding performance benchmarks from NMD's Technology Program (program status before designation as an MDAP – Major Defense Acquisition Program), we clearly discerned the government's historical weakness in effectively and efficiently integrating materiel systems.

In addition, at the invitation of Air Force Lt. Gen. Lester Lyles, Director, BMDO, we received several recommendations from defense industry Chief Executive Officers on how to accomplish an integrated "single system." Their unanimous responses and recommendations convinced BMDO that American industry had the expertise to accomplish the systems integration tasks that lay ahead,

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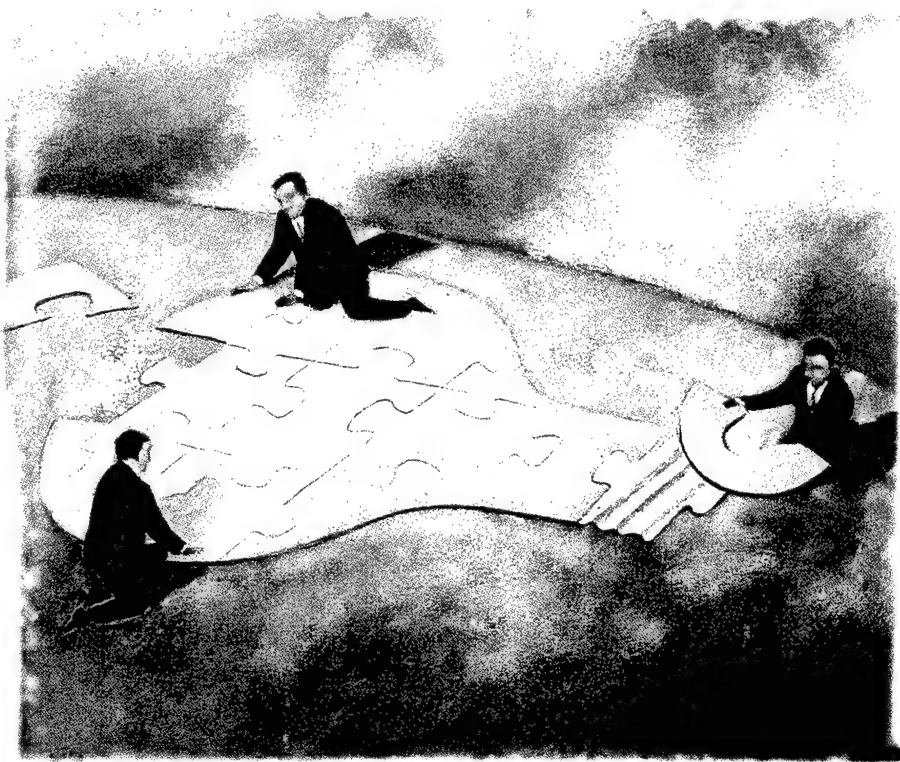
NMD management's directions to "make Acquisition Reform work" for the benefit of the NMD Program meant filtering out many of the old ways of acquisition...If a process did not "fit" with the NMD acquisition strategy, we did not give it a priority for NMD.

and the organizational resources necessary to pull together the various suppliers.

After carefully analyzing all our integration options, we responded to industry with a formal procurement action for an NMD "Lead System Integrator" (LSI). A draft Request for Proposal (RFP) for an LSI contractor for the National Missile Defense program went public on Feb. 13, 1997.

Our acquisition strategy included a solicitation for Concept Definition contractors. From these, in a second competition, we would later select a single NMD LSI contractor that would use current Acquisition Reform measures to streamline the procurement process.

On April 1, 1997, DoD authorized and directed establishment of the NMD Joint Program Office (JPO) to manage the program. This included oversight for the LSI source selection and all efforts to develop, integrate, and potentially field an NMD System.

Competitive RFP For LSI

DoD's process to solicit vendors and contractors is a lengthy, detailed exercise, even with Acquisition Reform. To ensure

"best value" procurement, it includes necessary checks and balances to ensure equitable competition on a level playing field.

The requirement for performance-based contracting and streamlining solicitation activities was a new experience for BMDO. These changes in process and culture took time to understand and exploit.

At the time DoD directed BMDO to go forward with the LSI solicitation, only two full-time personnel from the NMD Program Office were available to work on the LSI RFP – the Contracting Officer and Task Leader. Unlike Major Service Acquisition Centers, BMDO has no overhead personnel in reserve, working as full-time functional experts in an RFP Service Center.

Our dilemma then, was program start-up and how to form a strong acquisition team comprised of tri-Service acquisition expertise, matrixed BMDO functional personnel, and our Scientific, Engineering, and Task Assistance (SETA) support contractors.

The Director, BMDO, prior to the standup of the JPO, directed the NMD Program to use an LSI contractor. As a result of that direction, the provisional NMD Program Manager, Air Force Col. D. McNierney, tasked NMD's SETA contractor to organize an interdisciplinary contractor "team" to support the soon-to-be-expanded government source selection team.

Col. McNierney's directions were clear: They were to "implement all provisions of the Federal Acquisition Regulation (administrative, logistics, functional area specialists) to support the LSI solicitation through source selection completion."

Additionally, he required that they recommend how, and identify which Acquisition Reform initiatives to implement, along with appropriate statuary, regulatory, and DoD procedural guidance. Major considerations included:

- Using new Federal Acquisition Regulations (FAR)
- Considering revised thresholds for certified cost and pricing data
- Increasing paperless contracting through electronic commerce
- Simplifying acquisition procedures
- Calling for use of Integrated Product Teams (IPT)
- Relying on specifications and standards reform (performance specification)
- Encouraging use of commercial practices and equipment
- Embracing the single process initiative
- Reducing requirements for government oversight
- Streamlining review processes
- Implementing procurement process reengineering initiative throughout the program
- Expanding reliance on modeling and simulation
- Using open systems approach
- Ensuring the LSI uses the earned value management system
- Using CAIV (Cost as an Independent Variable) (both government and LSI)
- Encouraging more parametric cost estimates
- Shifting acquisition culture from past non-value added processes to reinvention of processes that work for NMD Systems.

The government desired a source selection team effort that would result in the integration and alignment of appropriate government Acquisition Reform initiatives and lay a solid foundation for the upcoming LSI solicitation. Likewise, the NMD JPO also wanted their acquisition team to follow through on process improvement ideas suggested by the government's workforce and industry.

Time management, or the lack of enough calendar days, turned most SETA effort and resulting paradigm changes into a "learn as you go" or reinvention basis. Yet, JPO's overall objective was achieved because of the dedication and unselfish work of a small group of highly skilled government personnel and their SETA contractor counterparts who were committed to our "One Team, One Program" philosophy.

Making Acquisition Reform Work

NMD management's directions to "make Acquisition Reform work" for the benefit of the NMD Program meant filtering out many of the old ways of acquisition while incorporating the "best practices" being learned throughout DoD and industry. If a process did not fit with the NMD acquisition strategy, we did not give it a priority for NMD.

At times, such screening ruffled feathers, especially when it caused changes in the [then] NMD element organizational infrastructure. Most of these ongoing Service-managed research and development projects were run very well and making progress. The problem was their separate goals and destinations did not converge upon an "NMD system." Thus, to do its job and perform it with any measure of success, our LSI support team first had to objectively analyze the total gamut of acquisition streamlining opportunities.

This exercise in rethinking required our team to engage in a continuous "Acquisition Reform mode of operation." Our consensus objective, then, for the self-learning task (learn as you go) was to focus on the NMD's and LSI's bottom line: the development and potential fielding of a cost-effective, operationally suitable NMD.

Finding The Right Tools

Toward that end, our team took each Acquisition Reform initiative and tailored it to the NMD Program's needs by focusing on what worked well (cost effectively and operationally suitable) on similar programs. After we identified these results, they yielded potential tools to execute the LSI program and integrate the NMD elements into a cohesive system.

During the development of the LSI RFP, our team discovered that the formal database for lessons learned for Acquisition Reform/streamlining was very small. However, our analysts were looking for quality data and not quantity. Analyzing appropriate aspects of DoD's initial seven Defense Acquisition Pilot Programs

(DAPP), they then applied these lessons to the LSI procurement. These 1994 pilot programs, conducted under the Federal Acquisition Streamlining Act, functioned to develop metrics and baseline issues for modernizing the defense acquisition process.

The DAPP's initial influence on our LSI strategy was to partner with industry to get the best RFP, to encourage Commercial-Off-The-Shelf (COTS) solutions to the maximum extent possible, and to use performance-based contracting. The latter meant minimal government oversight of the LSI's internal processes, and much less specification of the "how to do it." To accomplish all of these goals meant that the NMD LSI team had to overcome paradigms of the past principle and recognize that future defense products must use "best business practices."

In addition, the team adjusted the LSI solicitation to satisfy the principles set down by Secretary of Defense William S. Cohen in his November 1997 "Defense Reform Initiative Report." At that time, Secretary Cohen envisioned paperless contracting, logistics and support, dissemination of DoD-wide regulations and instructions by electronic media or the Internet, and replacing the "just in case" mindset with "just in time" in logistics.

An example of a "best business practice" was our preference for early government and industry participation in the LSI procurement program. After the government decided what the draft RFP was to contain, the SETA support team, using the capabilities of the Internet, placed all relevant bidder information on the World Wide Web, including several updated versions of the draft RFP.

Industry provided us [government] near real-time comments and valuable insight on the draft RFPs. Using the Internet, all of us coordinated, communicated, and commented through our restricted-access Web site. Estimates are that our LSI Web site routinely contained more than a gigabyte of constantly updated data for the contractors and the extended NMD Team.

In addition, the Web site provided us confidence that all bidders were on equal competitive footing, and the Service Components had an opportunity for continual review and buy-in to the "One Team, One Program" philosophy.

We conducted the LSI source selection electronically in a secure environment. Using support contractor facilities and equipment for government evaluators, we managed a computer-based source selection. All in all, significant timesavings resulted from compiling evaluator's comments, evaluations and re-evaluations, decision briefs, and proposal analysis reports, on over 50 personal computers, in 30 separate rooms, on two secure networks.

Additionally, all briefings provided to the Source Selection Evaluation Board (SSEB), Source Selection Advisory Council (SSAC), and Source Selection Authority (SSA) were computer-based. They showed the documented strengths, weaknesses, and minimized confusion and fumbling through reams of paper to answer simple questions. The complete record of source selection data for the contractor proposals and government evaluation now exists as a comprehensive electronic data package.

Program Execution
The execution of the NMD Program did not start with its designation as an MDAP, the LSI solicitation, or even the source selection. These separate events were all part of the vision and planning processes that will lead to the eventual NMD element integration into a single cohesive system. Execution can only start when the "One Team, One Program" carries out the plans and gets the job done right.

The title of this article, "Up and Running," best describes NMD's complete and comprehensive processes. The NMD JPO is "up," and Boeing North American Inc., which was selected as the LSI contractor on April 30 of this year, is "running" to get the job done.

Choosing Boeing as the contractor to execute NMD's LSI Program represented a

Ultimately, Boeing will be responsible for designing, developing, testing, and integrating all NMD elements into a viable system that will provide all 50 states with limited ABM protection.

significant milestone. To do so without protest in a fair and almost record time for so complex a source selection was a validation of our procedures.

Central to Boeing's planning process is their preparation of an Integrated Management Plan (IMP) and Integrated Master Schedule (IMS). These documents reflect Boeing's commitment to the NMD mission and acquisition streamlining.

Importance of IMP/IMS
As the LSI program execution phase begins, the contract's IMP/IMS are essential tools NMD Team management will use to monitor the program's performance, cost, and schedule objectives.

A very important management event that occurred early in the new NMD LSI con-

tract was a formal review of Boeing's Performance Measurement Baseline (PMB). The review, called an Integrated Baseline Review (IBR), took the form of an extensive and intensive analysis of Boeing's planning data at a level of detail that discloses the essential integration of cost, schedule, and technical performance.

Its purpose is to comprehensively examine the products Boeing plans to produce in order to verify that Boeing's PMB actually contains all technical work the contract requires. In addition, the IBR process ensures that related resources and schedules are accurate and adequate to accomplish the work, and that an overall understanding of the Earned Value Management (EVM) process exists.

More Than Just Another Procurement Effort
The process to get an integrated NMD System "up and running" turned out to be more than just another DoD procurement effort. It clearly forged a cooperative spirit of "One Team, One Program" between the participating Military Services, their support contractors, Users, and the defense industry. The 14-month effort to get the NMD's LSI contract "up and running" facilitated the essential bonding process so vital and necessary for a "One Team, One Program" philosophy.

Now program execution is up to these same people. Program execution is even more critical for the NMD now that its newest team member, Boeing, has been identified. Ultimately, Boeing will be responsible for designing, developing, testing, and integrating all NMD elements into a viable system that will provide all 50 states with limited ABM protection.

Although the NMD Team has no direction to field or deploy an ABM capability at this time, we will execute the planning to do so in as short a span of time as possible. Success breeds success, and for that reason we are optimistic the program execution will be done on time and within budget with the team we now have.

DSMC Hosts Northrop Grumman Corporation Risk Management Seminar

Better, Faster, Cheaper — Perhaps Even Smarter

BILL BAHNMAIER

Defense Systems Management College hosted a Risk Management Seminar sponsored by the Northrop Grumman Corporation on Sept. 28-29, 1998, at the DSMC main campus, Fort Belvoir, Va. Attendees at the seminar included project managers from Northrop Grumman traveling from places as distant as Bethpage, N.Y., Melbourne, Fla., and Rolling Meadows, Ill.

The managers are all involved in electronic defense systems, including the Joint Surveillance Target Acquisition and Reconnaissance System (JSTARS) and Navy EA6B Aircraft Upgrade. Scott Pozza and Frank Catalfamo of Northrop Grumman and Bill Bahnmaier of DSMC jointly planned the seminar.

The "Technology-Based Education and Training" section of the July-August 1998 edition of *Program Manager* magazine featured an article on an educational partnership between DSMC and a prominent defense contractor. That partnership and others like it, fostered under Acquisition Reform, served as a catalyst for the Northrop Grumman Seminar. During the two-day seminar, discussion covered the spectrum of risk management tools and activities — and their relationship to program management.

Frank Swofford, the DSMC National Defense Industrial Association Chair, delivered the welcoming remarks. Swofford has served in many DoD acquisition leadership positions, including Assistant Secretary of the Navy, Shipbuilding and Logistics. Instructors included DSMC faculty, Air Force risk management experts, and other local experts in the field.

Dr. Davidson Frame of the University of Management and Technology, Arlington, Va., is the author of several recent books on project management. He presented the academic side of risk management processes and his own experiences in various risk management consulting projects over the past 10 years.

Many of the projects managed by attendees are Air Force programs, so the latest information on the Air Force Risk Management Process was essential. Risk management techniques, requests for proposals, and contract award were discussed by Larry Long and Air Force Maj. Chris Belson, from Wright-Patterson AFB, Ohio.

Long and Belson presented the latest Air Force guidance from the U.S. Air Force Acquisition Support Team on the risk management module of the Performance-Based Business Environment. This latter presentation included practical guidance on the Performance Risk Assessment Group (PRAG), a government body appointed by the Source Selection Advisory Council to assess contractor's performance risk. As a part of the source selection process, the PRAG conducts an analysis of past performance to determine the degree of risk involved in accepting a contractor's proposal.

Jeffrey Robinette, also from Wright-Patterson AFB, described the application of a computerized risk analysis tool — Probability/Consequence Screening — developed by the Aeronautical Systems Center.

Dr. Dean Baker, a Northrop Grumman Vice President and General Manager, gave his experiences and expectations for handling project risk. Lou Simpleman of the Institute for Defense Analyses in Alexandria, Va., discussed the DoD Risk Management Working Group, which used both industry and government best practices in developing risk management input to the Defense Acquisition Deskbook and the *DoD Risk Management Guide*. Other speakers included Frank Catalfamo, who covered best practices at Northrop Grumman and Bill Bahnmaier of DSMC, who presented a government program manager's perspective on risk management.

In the latter presentation, practical risk management software tools were demonstrated, sample cases were examined, and attendees presented some of the risk management — and program management — challenges that they were currently facing. Some software models demonstrated were: Risk+ (a Monte Carlo simulation add-on to Microsoft Project); Risk Matrix, an Excel-based program developed by the Mitre Corporation in collaboration with the Air Force Electronic Systems Division; and the Technical Risk Identification and Mitigation Software, developed by the DoD-sponsored Best Management Practices Center of Excellence.

The two-day seminar provided an opportunity for Northrop Grumman project managers to focus on risk and program management in a relaxed academic environment, plus exchange valuable information with government and company practitioners. The knowledge gained will enable the company to bid and perform "better, faster, and cheaper" — perhaps even smarter — on future programs.

Bahnmaier is a professor of Systems Acquisition Management, Faculty Division, DSMC

SEMINAR LEADERS FRANK CATALFAMO OF NORTHROP GRUMMAN, MELBOURNE, FLA.; AIR FORCE MAJ. CHRISTOPHER BELSON OF WRIGHT-PATTERSON AFB, OHIO; LAWRENCE LONG OF WRIGHT-PATTERSON; AND BILL BAHNMAIER, DSMC MAIN CAMPUS, FORT BELVOIR, VA., DISCUSS THE AGENDA FOR THE RISK MANAGEMENT SEMINAR.

ENGAGING IN DISCUSSION IS NORTHROP GRUMMAN'S HARRY LEE OF MELBOURNE, FLA., DURING THE RECENT RISK MANAGEMENT SEMINAR HELD AT DSMC'S MAIN CAMPUS, FORT BELVOIR, VA.
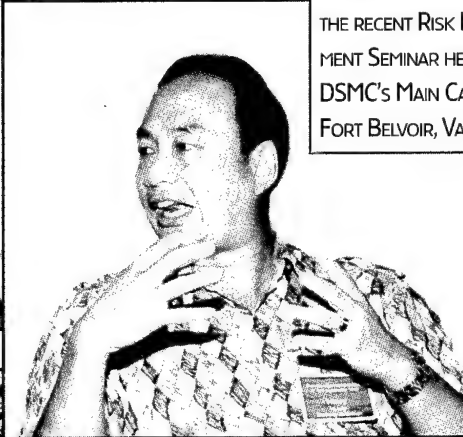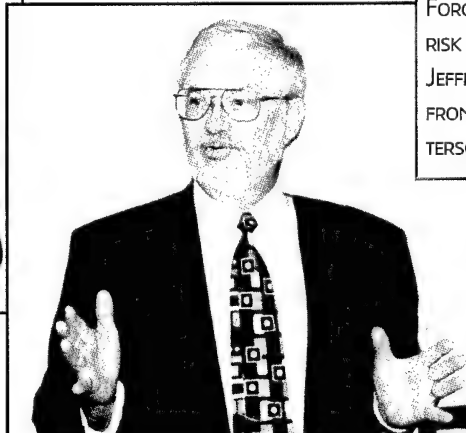
RISK MANAGEMENT SEMINAR ATTENDEES GATHER IN FRONT OF SCOTT HALL, DSMC MAIN CAMPUS, FORT BELVOIR, VA.

DR. DEAN BAKER, NORTHROP GRUMMAN VICE PRESIDENT AND GENERAL MANAGER, GIVES THE INDUSTRY PERSPECTIVE DURING THE RISK MANAGEMENT SEMINAR.
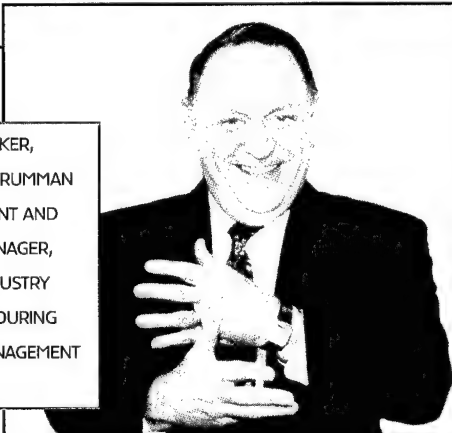
EXPLAINING THE AIR FORCE'S APPROACH TO RISK MANAGEMENT IS JEFFREY ROBINETTE FROM WRIGHT-PATTERSON AFB, OHIO.

P O I N T S   O F   C O N T A C T

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Proud of Their Native American Heritage

About 200 members of the Fort Belvoir, Va., community gathered Nov. 10, 1998, in the SOSA Recreation Center to hear DSMC Commandant, Navy Rear Adm. Lenn Vincent give the keynote address at Fort Belvoir's kickoff celebration of Native American Heritage Month. Vincent, a native of southeast Oklahoma, spoke of his pride in his own Cherokee heritage.

Also attending the celebration was E. Donald Two-Rivers, author of *Survivor's Medicine,* and a Native American activist. Two-Rivers spoke of his pride in being the brother of a slain Vietnam veteran, and the pride he held as a member of a culture where warriors were honored and honorable.

He noted that when Native American warriors returned from battle, they were offered cleansing in ceremony, and that many Vietnam veterans who had experienced this cleansing had had a significant reduction in post-traumatic stress.

Two-Rivers spoke particularly to the young students in the audience, urging them to stay in school to learn their life's lessons, not learn on the streets as he did.

About 100 children from nearby Fort Belvoir Elementary School and Fred Lynn Middle School participated, sampling the Indian food and browsing among the Native American crafts on display.

E. Donald Two-Rivers, author and Native American activist, presents a copy of his book, *Survivor's Medicine,* to Navy Rear Adm. Lenn Vincent, DSMC Commandant. Vincent is holding a traditional Native American headdress.

DoD DACM Introduces Virtual Institute!

The Defense Acquisition Corps Institute (DACI) is available to you! DACI is a virtual entity, fully funded and managed by the Office of the Director of Acquisition Career Management (DoD DACM). The DACI provides high-priority development opportunities to Defense Acquisition Corps (DAC) members using distance learning technology whenever possible.

DACI development opportunities match the exact development needs that DAC members, their supervisors, and the DoD Functional Boards have identified. These opportunities are carefully chosen to complement —not duplicate —the technical acquisition management curricula available to DAC members through the Defense Acquisition University and DoD Component programs for general management development.

Currently, three categories of education/training are available from DACI: satellite training in topical management subjects, video-based graduate education in business, and World Wide Web-based peer learning.

Those interested can visit the DACI Web Site at **http://www.doddacm.com/doddacm/das/daci/index.html** on the Internet.
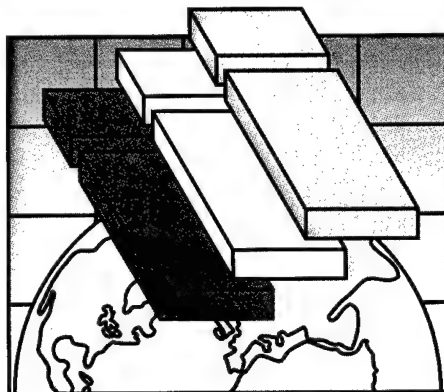
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Researchers, both national and international, interested in or involved with acquisition are invited to submit papers for the *1999 Acquisition Research Symposium*. We encourage your participation and welcome your contribution to the success of this Symposium.

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PAPER GUIDELINES

Please submit 3 camera-ready copies of your research paper *NLT February 26, 1999. Submit to: Joan L. Sable, DSMC Program Chair, ARS 99, 9820 Belvoir Road, Suite 3, Fort Belvoir, Va. 22060-5565 or E-mail to* **ars99@dsmc.dsm.mil** . *If you have questions, please call (703) 805-5406 or DSN 655-5406.*

Include a separate page with author name, address, pertinent contact information, the title of the research paper, and identification of a topic area.

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1. DOC   Save your paper in Microsoft Word 97.
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1. Use 1-inch top, bottom, and side margins.
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5. Format the rest of the paper as two text columns of equal width.
6. Graphics and/or charts can either be whole page, half page, or quarter page.
7. The font, font style, and font size should be Times New Roman, Regular, Size 12.
8. Include in your paper a one-page *abstract* that includes a concise statement of the problem/research question and the scope and method of your approach. The rest of the paper should have the following: *Introduction, Body of the Paper, Conclusions, and References/Endnotes.*
9. Limit your paper to *15 pages*.

Eighth Semiannual PEO/SYSCOM Commanders Conference

"The Future Is Today"

KARI PUGH

avy Rear Adm. "Lenn" Vincent, Commandant of the Defense Systems Management College at Fort Belvoir, Va., greeted the 370 participants at the Eighth Semiannual PEO/SYSCOM Commanders Conference the morning of October 19 with a look to the future.

Vincent told the crowd that the theme for the two-day conference, "For Defense: The Revolution in Business Affairs," had special meaning for the College.

"The theme of this event describes a concept this College believes is critical to the acquisition workforce," he said. "Training for our new ways of doing business must be our No. 1 priority. At this College, it is a mandate and a challenge that we take very seriously: empowering the acquisition workforce."

The overall agenda for the fall conference, sponsored by the Defense Systems Affordability Council, marked the direct result of a summer survey sent to all PEO and SYSCOM Commanders. Input from the day-to-day practitioners in the acquisition and logistics communities served as the foundation for the conference, which stressed three essential themes in the revolution facing the Department of Defense today:

- Reducing Total Ownership Cost
- Reducing Cycle Time
- Integrating the Commercial and Military Industrial Bases

Pugh is a staff reporter for the Free Lance-Star, *Fredericksburg, Va.*

"HOPEFULLY, WE WON'T RECOGNIZE ACQUISITION IN FIVE YEARS. TO GET THERE, WE NEED TO FOCUS ON TRAINING AND EDUCATION. OTHERWISE, WE WON'T MEET THE DEMANDS PLACED BEFORE US."

—DR. JACQUES S. GANSLER USD(A&T)

The Winners Will Be theWarfighters

Dr. Jacques S. Gansler, Under Secretary of Defense (Acquisition and Technology) (USD[A&T]), roused the audience with a challenge in his keynote speech given the morning the conference opened.

"What we're asking you today is not just to sustain the splendid efforts you've made in Acquisition Reform, but expand the fundamentals," he said. "If you meet the challenge, the results will be dramatic, and the winners will be the warfighters."

Gansler tagged Price-Based Acquisition (PBA), Reducing Total Ownership Cost (R-TOC), and Shorter Cycle Times as the wave of the future in the DoD. He told conference attendees to expect big changes as the Department moves into the 21st century.

"Hopefully, we won't recognize acquisition in five years," Gansler said. "To get there, we need to focus on training and education. Otherwise, we won't meet the demands placed before us."

Gansler believes that A&T must also change its focus from determining the fairness of prices based on inputs, or cost, to outcomes, meaning performance

and value. Price-Based Acquisition, he says, is one key to reducing Total Ownership Cost.

"We should establish contractual relationships that use price analyses. This is the way the commercial world functions, and it should be the way we function."

And while the DoD operates under governmental rules, it needs to engage the commercial world in the revolution in business *today,* he told the crowd. But the challenge to Defense acquisition doesn't loom in the distant *future,* Gansler warned. *"The future is today."*

All programs starting in 1999 and beyond should boast 25-percent shorter cycle times than comparable projects in the works today. "Information Age technology cycles are 18 months," he said. "In the DoD, it's more like 11 to 13 years."

Gansler commended the conference attendees for their commitment to Acquisition Reform, but noted that there is still a long way to go. "The reason we're here for this conference is that we realize how much more has to be done," he said. "We're sold on it, but we have to encourage others to be sold also.

"In the cost area," Gansler continued, "two of our specific objectives are to achieve or surpass Cost As An Independent Variable (CAIV) targets for at least 50 percent of our systems programs in Acquisition by the Year 2000, and to reduce the annual support cost per fielded weapon system by 20 percent by the Year 2005 as compared to the 1997 baseline.

"As a personal word to each of you who are here today," Gansler told the conferees, "I am looking to you to provide, not only your support, but your candid criticism and assessment of what we, collectively and individually, are doing and how we are going about it."

Cycle Time Reduction — A Business Tool
In the first session of the conference, Joe Eash, Deputy Under Secretary of Defense (Advanced Technology), showed

"FROM WHERE I SIT, SOMETIMES REQUIREMENTS SEEM LUDICROUS...WE CAN REALLY COME OUT WITH A MUCH STRONGER PROCESS. EDUCATION IS GOING TO BE THE KEY TO WHAT WE'RE DOING THERE."

—DARLEEN DRUYUN
PRINCIPAL DEPUTY ASSISTANT SAF
(ACQUISITION & MANAGEMENT)

just how detrimental 10- to 20-year cycle times can be to the DoD.

"We cannot predict threats 20 years in the future," he said during his presentation, "The Revolution in Business Affairs." Eash illustrated his point with a graphic showing how much history can change in two decades.

In 1919, Japan was an ally to the United States. In 1939, Japan was a major adversary. In 1945, Vietnam was an ally and a French colony. In 1965, Vietnam was a major adversary, and the United States was on the brink of war.

In 1971, Saddam Hussein was eight years away from power. In 1991, the United States went to war in Desert Storm. It is now 1998, the post-Cold War era. Giving the conferees something to think about, he asked them to consider the question, "What will 2018 hold?"

Cycle Time Reduction is one answer to lower cost, Eash said. It is also one of the most powerful, popular tools in the

business world, listed by corporations as a multi-purpose way to achieve profitable financial results and improve long-term capabilities.

In recent years, automobile, commercial aircraft, and consumer electronics companies have achieved 50- to 60-percent cycle time reductions, Eash told the conferees. What has to change for such cycle time reductions to become a reality in the DoD? "Technology, Acquisition, Requirements, and Sustainment," according to Eash, "will all play a role.

"We need to start off with mature technology, not wait for it. We need user-validated technology," he continued.

Requirements, according to Eash, need to focus on near-term needs, matched to technology. Acquisition must be a single-phase, schedule-driven and fully funded, with a plan for evolution. Sustainment must be considered in the process early, to make sure the systems can be maintained at low cost. Having fewer systems in acquisition is also a key to fully funding programs.

Overall, programming lead times need to be reduced, Eash said. "The Packard Commission told us that it is possible to cut this cycle in half, and that is the challenge we face."

Status of R-TOC Working Group
Dr. Spiros Pallas, Principal Deputy Director of Strategic and Tactical Systems, Office of the Under Secretary of Defense (Acquisition and Technology), presented the status of the Reduction in Total Ownership Cost (R-TOC) Working Group. Discussion included progress made since he initiated the R-TOC Working Group in July.

Pallas, named by Dr. Gansler as the Champion for R-TOC, reviewed the five high-priority, near-term R-TOC payoff areas that the TOC Working Group identified in its two-hour meetings each Tuesday and Thursday. Group members developed five draft roadmaps for these areas. The development of each of these formed the five R-TOC breakout sessions on the

first day of the conference. The breakout sessions included:

- Logistics Cycle Time Reduction
- Funding Stability for R-TOC Programs
- R-TOC Cost Drivers
- Life Cycle Costs in Key Performance Parameters (KPP) and Analyses of Alternatives (AoA)
- Up-front R-TOC Investments

"We must streamline TOC activity, develop a DoD roadmap for the reduction of TOC, identify new tools, and develop training and educational needs," Pallas told attendees.

The breakout groups met simultaneously in the afternoon, each taking intense looks at the most important aspects of R-TOC and refining the draft roadmaps formed by the working groups. On the second day of the Conference, the Leader of each breakout session reported on their discussions to Dr. Jacques Gansler, USD(A&T); David Oliver, Principal Deputy Under Secretary of Defense (Acquisition and Technology) (PDUSD[A&T]); and the Service Acquisition Executives.

For the future of the Working Group, Dr. Pallas sees the need for three things:

- The continuation of review and integration of various R-TOC efforts.
- Development of a pilot program forum to engage senior DoD leadership.
- The development of an integrated R-TOC strategy.

Meeting the Requirements of the 21st Century

In his talk "Reinventing Logistics for the 21st Century," Louis Kratz, Director of Logistics Reinvention for the DoD, called for a robust partnership with commercial sector industry as we enter the new millennium.

During his presentation, Kratz said his main focus is reducing order-to-receipt time for parts from 36 days to five days through improved information management and rapid transportation.

"THERE IS GREAT INCENTIVE NOT TO REDUCE OUR STRENGTH."

—DAVID OLIVER
PDUSD(A&T)

"To do this," he said, "logistics must capture consumption and requirements at the point of need, then relay that need via commercial standards to industrial partners and allies.

"The structure we have today will not meet the requirements of the 21st century," Kratz said. "To achieve required modernization, we must break the vicious cycle via process change and information technology. We need to do some serious reengineering. We are asking our soldiers to perform a 21st century mission with 1960s' and 1970s' technology."

The operation and maintenance of our aging fleet consumes over $8 billion per year, Kratz told the attendees. "We are choking off our resources for modernization."

To accomplish reinvention, Kratz said, logistics needs to tackle the following areas:

- Improve service to the warfighter through response times, agility, and accuracy.
- Optimize the logistics footprint to enable agility.
- Develop an asset-based infrastructure.
- Reduce logistics costs to enable modernization.

Art Money Talks Y2K

During lunch on Day 1 of the conference, Art Money talked about the Y2K compliance challenges he faces in his work as the Senior Civilian Official with the Office of the Assistant Secretary of Defense, C3I. Essentially, it's Money's job to ensure the continuity of mission-essential DoD operations, despite Y2K disruptions.

"It will cost the DoD at least $1.1 billion to deal with Y2K," Money said. "It is the electronic Waterloo, with the idea that we win. The French didn't come back."

Within OASD(C3I), goals and priorities for the 21st century include:

- Ensuring globally secure connectivity and critical infrastructure protection.
- Building a coherent global network.
- Promoting the development of a knowledge-based workforce within the DoD.
- Planning and implementing joint and combined, end-to-end, C3I space reconnaissance and space integration.
- Promoting electronic commerce and business process change throughout the DoD.
- Establishing policies and budget priorities that will lead to the reinvention of intelligence for the 21st century.

Money also urged all DoD officials to be cautious in their day-to-day computer work, since terrorism has gone high-tech. "We all need to be aware of security as technology grows and becomes more available and widespread, particularly as we near the year 2000," he said.

The Future of the Acquisition Workforce

An evening panel led by Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform), tackled questions from the audience about the Defense acquisition workforce. In addition to Soloway and Dr. Gansler, the panel included David Oliver, PDUSD(A&T); David Berteau, Corporate Vice President of Science Applications International Corporation; Paul Schneider, Principal Deputy Assistant Secretary of the Navy (Research, Development, and Acquisition); Dr. Kenneth

Oscar, Deputy Assistant Secretary of the Army for Procurement; and Dr. Donald Cymrot, Director of the Workforce Education and Training Team at the Center for Naval Analysis.

Dr. Gansler opened the discussion, reminding the conference attendees to recognize the changing nature of what the DoD has been asked to do. "We have an aging workforce," he said. "Compared with the skills we need, you can see the dilemma we're going to have."

The future, he believes, will require more decision making, and thus more skill in decision makers. Says Gansler, "We will have fewer 'doer's' and more managers."

One question from the audience sparked a long discussion about the many aspects of DoD downsizing. The attendee asked how the Department could be saving money with staff reductions while continuing to offer pay increases. "The ideas from this conference make great sense, but how can we implement them without staff?" he asked.

"There is great incentive not to reduce our strength," Oliver said.

"Whatever we do, we have to pay the people," Cymrot added. "I absolutely disagree with not funding the people."

Schneider said he hopes to see the DoD workforce on an even-keel in years to come. "We projected into the future and decided to take the pain sooner rather than later," he said. "We hope the result is a stabilizing of the future workforce."

Dr. Gansler fielded the question by deeming "process changes" as the only answer for significant downsizing. "Don't make the assumption that you're going to do the same job with fewer people," Gansler said, "because you're not. The processes must change."

Other questions from the attendees had the panel dealing with such subjects as: job rotations between government and industry; hiring mid-career personnel into government positions; moving civilian personnel around in jobs requiring

"THE PRESERVATION OF THE STATUS QUO IS NOT SERVING US WELL."

—H. LEE BUCHANAN
ASN(RD&A)

military career designators or occupational specialties to acquire new skills; hiring a base number of young graduates to begin to build a base of A&T resources; education and training issues; and program manager responsibilities.

The Breakout Sessions

The second day of the conference began with a report-out from the previous afternoon's six breakout sessions on Cycle Time and R-TOC.

Cycle Time Session

Joe Eash reported-out for the team focusing on "Cycle Time Reduction." During their breakout session, they studied current cycle time data, ongoing Service initiatives, targets, goals, and required actions. They then went into a workshop to analyze the cycle time implications for a specific product.

According to Eash, the group made progress, but there is much more work to be done. An economic analysis must be completed to find the most important factor for a particular product. Time may not be the most important element.

The four economic objectives/elements studied were: 1) development speed,

2) product performance, 3) product cost, and 4) development expense.

Members of the cycle time session reported these four selected observations:

- Almost every weapons system that the DoD is working on is needed today.
- If the DoD wants to do things faster, it could.
- Cycle time is best addressed at the beginning of programs.
- Many of the key drivers are outside of the direct control of the acquisition community, such as budgeting and requirements.

Funding Stability for R-TOC Programs

Navy Rear Adm. Jeff Cook, PEO for Tactical Aircraft Programs (representing Dr. Ken Oscar) discussed the outcome of this Group's work on "Funding Stability for R-TOC Programs." This Group considered the problem areas undermining R-TOC efforts and reported them as the following:

- Requirements Process (ill-defined, Requirements growth, and pushing for too-far-out technologies).
- Program Execution (technical optimism, optimistic bids, no reserves, multi-year procurements, and program transition and turnover).
- External Factors (inflation, changes in political atmosphere, undistributed cuts, and migration of funding to Operations and Maintenance budgets).
- More Programs than Available Funds (reluctance to kill programs, stretch-outs, and unrealistic "squeezing" of programs).

The Group brainstormed solutions, deciding that: 1) more team effort is needed early-on; 2) programs do not need to go after all new technology at one time; 3) DoD officials need to establish a Top 10 list of untouchable projects with Congress; and 4) those wielding the red pens should make budget cuts in bulk versus targeting specific weapons systems.

SPEAKING AT A SESSION ON CYCLE TIME REDUCTION, AIR FORCE CAPT. ROSS McNUTT PRESENTED "THE DoD SCHEDULE DEVELOPMENT PROCESS." McNUTT IS AN AIR FORCE STRATEGIC BUSINESS PLANNER (LEAN AEROSPACE INITIATIVE), OFFICE OF THE SECRETARY OF THE AIR FORCE (ACQUISITION).

IN HIS TALK "REINVENTING LOGISTICS FOR THE 21ST CENTURY," LOUIS A. KRATZ, DIRECTOR OF LOGISTICS RE-FORM FOR THE DoD, CALLED FOR A ROBUST PARTNERSHIP WITH THE COMMERCIAL SECTOR AND INDUSTRY AS WE HEAD INTO THE NEW MILLENNIUM. DURING A TOTAL OWNERSHIP COST BREAKOUT GROUP, KRATZ ALSO FACILITATED A SES-SION ON LOGISTICS CYCLE TIME REDUCTION.

CONFERENCE EXHIBIT — NAVY ACQUISITION REFORM DIS-PLAY. PICTURED FROM LEFT: AIR FORCE MAJ. GEN. CLAUDE BOLTON, DIRECTOR OF REQUIREMENTS, AIR FORCE MA-TERIEL COMMAND; DONA LEE; DR. JIM PRICE, DEAN, RE-SEARCH, CONSULTING, AND INFORMATION DIVISION, DSMC.

NAVY REAR ADM. "LENN" VINCENT, DSMC COMMANDANT, WELCOMED CONFEREES TO THE FALL CONFERENCE.

BLAISE DURANTE, DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE FOR MANAGEMENT POLICY AND PROGRAM INTEGRATION, LED THE BREAKOUT GROUP ON "UP-FRONT R-TOC INVESTMENTS."

RETIRED AIR FORCE LT. GEN. "TOM" FERGUSON DELIVERED THE CONFERENCE OPENING REMARKS AND INTRODUCED THE KEYNOTE SPEAKER.

DR. JACQUES S. GANSLER, UNDER SECRETARY OF DEFENSE (ACQUISITION & TECHNOLOGY), SAID IN HIS KEYNOTE RE-MARKS THAT "...THE CHALLENGE TO DEFENSE ACQUISITION DOESN'T LOOM IN THE DISTANT FUTURE. THE FUTURE IS TODAY."

LINDA NORTHROP, DIRECTOR, PRODUCT LINE SYSTEMS PROGRAM, FOR THE SOFTWARE ENGINEERING INSTITUTE AT CARNEGIE-MELLON UNIVERSITY, FLEW TO WASHING-
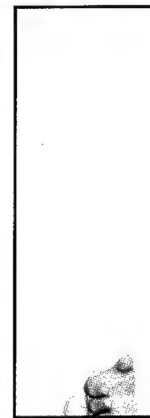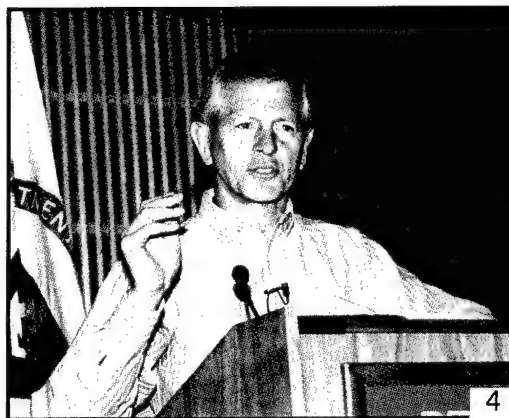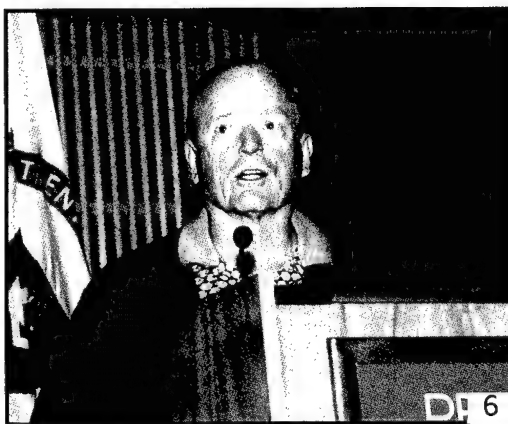
Reduction, Commercial-Military Integration

TON ON A RED-EYE FLIGHT TO DELIVER HER CONFERENCE PRESENTATION, "ARCHITECTURE BASED SYSTEMS."

TERRENCE A. "TERRY" TREPAL, ACTING DEPUTY FOR MATERIEL AND DISTRIBUTION MANAGEMENT, OFFICE OF THE DEPUTY UNDER SECRETARY OF DEFENSE (LOGISTICS).

A LIVELY DISCUSSION PANEL LED BY STAN SOLOWAY, DEPUTY UNDER SECRETARY OF DEFENSE (ACQUISITION REFORM), TACKLED QUESTIONS FROM CONFEREES ABOUT THE DEFENSE ACQUISITION WORKFORCE. PICTURED FROM LEFT: SOLOWAY, DAVID BERTEAU, CORPORATE VICE PRESIDENT OF SCIENCE APPLICATIONS INTERNATIONAL CORPORATION; DR. DONALD CYMROT, DIRECTOR OF THE WORKFORCE EDUCATION AND TRAINING TEAM AT THE CENTER FOR NAVAL ANALYSIS; DR. JACQUES S. GANSLER (USD[A&T]; DAVID OLIVER, PRINCIPAL DEPUTY, USD(A&T); DR. KENNETH OSCAR, DEPUTY ASSISTANT SECRETARY OF THE ARMY FOR PROCUREMENT, AND PAUL SCHNEIDER, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE NAVY (RESEARCH, DEVELOPMENT, AND ACQUISITION).

PASQUALE "PAT" TAMBURRINO JR., DEPUTY PROGRAM EXECUTIVE OFFICER, SUBMARINES, LED ONE OF THE BREAKOUT GROUPS ON TOTAL OWNERSHIP COST. HIS DISCUSSION FOCUSED ON "LIFE CYCLE COSTS IN KPPS [KEY PERFORMANCE PARAMETERS] AND AoAS [ANALYSIS OF ALTERNATIVES]."

CYCLE TIME GROUP LEADERS AND TOTAL OWNERSHIP COST BREAKOUT GROUP LEADERS REPORTED-OUT TO THE ACQUISITION EXECUTIVES PANEL ON DAY 2 OF THE CONFERENCE. PANEL MEMBERS PICTURED FROM LEFT: DAVID OLIVER, PRINCIPAL DEPUTY USD(A&T); DR. JACQUES S. GANSLER, USD(A&T); DARLEEN DRUYUN, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE AIR FORCE (ACQUISITION AND MANAGEMENT); PAUL J. HOEPER, ASSISTANT SECRETARY OF THE ARMY (RESEARCH, DEVELOPMENT, AND ACQUISITION); AND H. LEE BUCHANAN, ASSISTANT SECRETARY OF THE NAVY (RESEARCH, DEVELOPMENT, AND ACQUISITION).

Photos by Richard Mattox

Focus on Total Ownership Cost, Cycle Tim

DONNA RICHBOURG, PRINCIPAL ASSISTANT TO THE DEPUTY UNDER SECRETARY OF DEFENSE (ACQUISITION REFORM).

DR. PATRICIA SANDERS, DIRECTOR OF TEST, SYSTEMS ENGINEERING, AND EVALUATION SPOKE ON "WHY SIMULATION-BASED ACQUISITION (SBA)?"

CONFERENCE EXHIBIT — AIR FORCE ACQUISITION REFORM DISPLAY. PICTURED FROM LEFT: AIR FORCE BRIG. GEN. WILLIAM BOND, COMMANDING GENERAL, SIMULATION TRAINING AND INSTRUMENTATION COMMAND; AIR FORCE COL. WILLIAM W. SELAH, SAF/AQXA; NAVY CAPT. BOB VERNON, DEAN, SCHOOL OF PROGRAM MANAGEMENT DIVISION, DSMC.

ALWAYS A CROWD PLEASER, ART MONEY, SENIOR CIVILIAN OFFICIAL WITH THE OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE FOR COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE (C3I) ENTERTAINED AND INFORMED CONFEREES OVER LUNCH ON THE TOPIC OF Y2K COMPLIANCE AND THE CHALLENGES AHEAD. MONEY ALSO SPOKE ON C3I'S GOALS AND PRIORITIES FOR THE 21ST CENTURY.

AIR FORCE COL. PHILIP A. FAYE, DIRECTOR OF REQUIREMENTS FOR THE JOINT STRIKE FIGHTER PROGRAM, PRESENTED "THE JOINT STRIKE FIGHTER — FLYING WITH SIMULATION-BASED ACQUISITION."

STEVEN GRUNDMAN, ACTING DEPUTY UNDER SECRETARY OF DEFENSE (INDUSTRIAL AFFAIRS AND INSTALLATIONS), INSPIRED THE CROWD WITH HIS TALK ON "LEVERAGING AVAILABLE INDUSTRIAL CAPABILITIES: GETTING BEST VALUE."

DR. SPIROS PALLAS, PRINCIPAL DEPUTY DIRECTOR OF STRATEGIC AND TACTICAL SYSTEMS, OFFICE OF THE UNDER SECRETARY OF DEFENSE (ACQUISITION
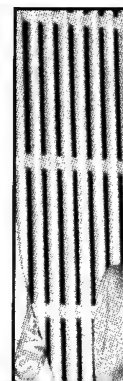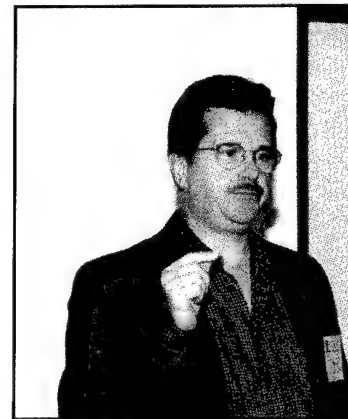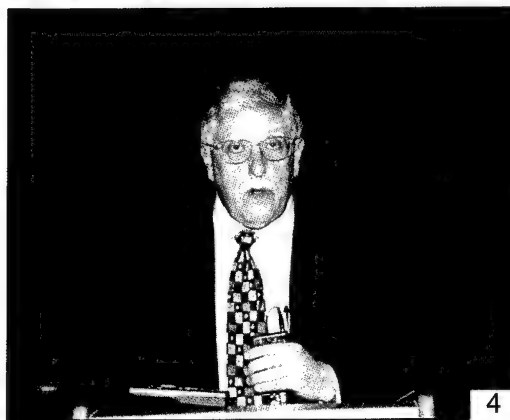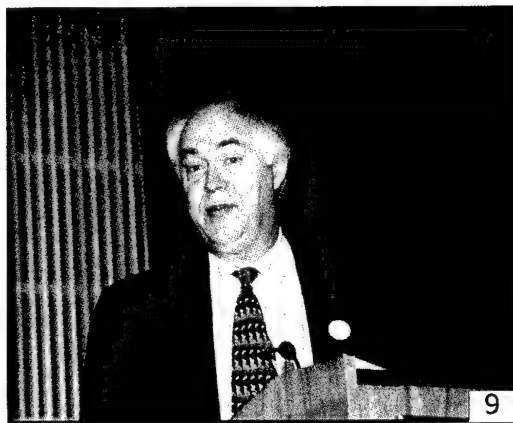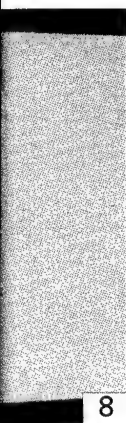
Reduction, Commercial-Military Integration

AND TECHNOLOGY), DISCUSSED PROGRESS MADE SINCE HE INITIATED THE REDUCTION IN TOTAL OWNERSHIP COST WORKING GROUP IN JULY.

DAN FINK, OFFICE OF THE CHIEF OF NAVAL OPERATIONS (N4).

JOSEPH J. "JOE" EASH III, DEPUTY UNDER SECRETARY OF DEFENSE (ADVANCED TECHNOLOGY), SPOKE ON A "REVOLUTION IN BUSINESS AFFAIRS" AND DESCRIBED JUST HOW DETRIMENTAL 10- TO 20-YEAR CYCLE TIMES CAN BE TO THE DoD.

STAN SOLOWAY, DEPUTY UNDER SECRETARY OF DEFENSE (ACQUISITION REFORM), LED A MID-MORNING PANEL LOOKING AT CIVIL-MILITARY INTEGRATION AND GETTING TO A PRICE-BASED ACQUISITION ENVIRONMENT. PANEL MEMBERS PICTURED FROM LEFT: VINCENT SULLIVAN, CONTRACT RELATIONS ADVISOR, IBM; AIR FORCE MAJ. GEN. TIMOTHY MALISHENKO, COMMANDER, DEFENSE CONTRACT MANAGEMENT COMMAND; WILLIAM STUSSIE, DEPUTY ASSISTANT SECRETARY OF THE NAVY (AIR PROGRAMS); DR. ROBERT HERMANN, DEFENSE SCIENCE BOARD; SOLOWAY.

EILEEN ROBERSON, ACQUISITION REFORM EXECUTIVE WITH THE ASSISTANT SECRETARY OF THE NAVY, OUTLINED THE TOTAL OWNERSHIP COST BREAKOUT GROUP'S TOPIC, "R-TOC COST DRIVERS."

CONFERENCE EXHIBIT — ARMY ACQUISITION REFORM DISPLAY. PICTURED FROM LEFT: ARMY STAFF SGT. PAUL GRANT; KATHI TUZZIO; MARIA HUGHES; LELAND THORPE.

Photos by Richard Mattox

Logistics Cycle Time Reduction
Representing Lou Kratz, Terry Trepal, Deputy for Material and Distribution Management in the Office of the Deputy Under Secretary of Defense (Logistics), listed a set of Key Observations on Logistics Cycle Time Reduction.

We must look at the overall logistics infrastructure and processes, said Trepal, since all of the Services have significant efforts ongoing in logistics reengineering. Any roadmap for this area, he continued, must include the following key logistics processes: supply, depot-level turnaround time, transportation, and reprocurement.

Defining a set of logistics cycle times and measurement issues for each of these key logistics processes was the Group's next step.

Finally, based on the discussions, issues, and outcomes of their decisions, the Group updated the initial draft roadmap for Logistics Cycle Time Reduction. The desired outcome: "To reduce all logistics cycle times to enable an average five-day Logistics Response Time by the year 2005."

R-TOC Cost Drivers
Eileen Roberson, Acquisition Reform Executive with the Assistant Secretary of the Navy, outlined her group's breakout topic, "R-TOC Cost Drivers." Roberson presented ongoing cost collection efforts that will provide the capabilities necessary to understand cost drivers and take action to reduce TOC.

The current strategy for understanding cost drivers is based on the Visibility and Management of Operating and Support Costs (VAMOSC) system for costs and Activity-Based Costing (ABC) for processes. "We need to provide more education resources for the workforce on both of these systems. We must make sure program managers are qualified to analyze ABC and VAMOSC data in order to make informed/correct decisions."

Life Cycle Costs in KPPs and AoAs
Pat Tamburrino Jr., Deputy Program Executive, Submarines, led the breakout

— Dr. Lloyd Herrmann, Defense Science Board.

discussion of "Life Cycle Costs [LCC] in KPPs [Key Performance Parameters] and AoAs [Analysis of Alternatives]."

The Group faced one key question: Should Life Cycle Cost/Total Ownership Cost be a KPP?

"The general answer was, 'it depends,'" Tamburrino said. Members of the group were against blanket incorporation of LCC in KPPs. They found it was difficult to measure and verify these costs in the early developmental phases of programs. However, LCC/TOC is an appropriate KPP if the cost of a new system must be lower than the cost of the system it is replacing.

One of the Group's conclusions was that more discussions are needed between the warfighter and the acquisition community on accountability for LCC/TOC.

Up-front R-TOC Investments
Blaise Durante, Deputy Assistant Secretary of Management Policy and Program Integration, led the breakout Group focusing on "Up-front R-TOC Investments." The opening discussion dealt with the need for a written Leadership Commitment to R-TOC from the Chairman of the Joint Staff and the

USD(A&T) in the form of a Strategic Plan and Defense Planning Guidance.

The group worked on a roadmap for Up-front R-TOC Investments with four topics dominating the agenda:

- Apply Cost As An Independent Variable (CAIV) to Force Structure (retire force structure, investment needs, and budget issues).
- Find innovative methods for going ahead with R-TOC investments.
- Review related R-TOC innovations for effects on cost.
- Lower funding authority for R-TOC efforts to the program manager level.

(For more detailed information on the four problem areas discussed in this section, see the Conference Web site listed at the end of this article.)

Simulation-Based Acquisition
Dr. Patricia Sanders, Director of Test, Systems Engineering, and Evaluation, along with Lockheed Martin Program Manager Jeff Gleeson and Air Force Col. Philip A. Faye, Director of Requirements for the Joint Strike Fighter Program, took turns explaining simulation technology from their unique points of view.

"We need to develop a synthetic battlespace for the DoD," Sanders said. She told attendees that SBA is a vital part of the solution to problems facing defense systems acquisition as it applies to advances in information technology. The DoD agreed-upon vision for SBA is an acquisition process that allows robust, collaborative use of the simulation technology integrated across acquisition phases and programs.

Gleeson talked about Lockheed Martin's shift toward SBA and the process initiatives and technologies they used. The company's goal is to support revolutionary reductions in cycle time and cost: 50 percent in development, 50 percent in manufacturing, and 30 percent in maintenance. "The emphasis is to enable design for affordability," he said.

Col. Faye gave a very detailed presentation and discussion of the Joint Strike

Fighter program's use of modeling and simulation during the entire program development cycle. "The JSF challenge is to affordably meet the needs of the warfighter," Faye said.

Never Make the Same Mistake Twice

Linda Northrop, Director of Software Systems for the Software Engineering Institute (SEI) at Carnegie-Mellon University, discussed "Architecture Based Systems."

In her presentation, Northrop told the attendees that SEI anticipates and influences industry's best practices for the benefit of the DoD. She urged attendees to keep in mind the Institute's strategic themes:

- Move to the left.
- Reuse everything.
- Never make the same mistake twice.

Moving to the left, she said, simply means having information to make decisions sooner rather than later. "As part of the University, SEI wasn't free to build their building any way they wanted," Northrop said. "We needed to understand how we could map a design into the standards of the university. You need to understand that, similarly, software has its own architecture that must fit the overall outside system architecture."

Reusing software technology just makes sense, Northrop told the conferees. The DoD needs to consider designing software systems that lend themselves to reuse, for affordability and reliability. The SEI, offering workshops to military and industry personnel throughout the year, can help the DoD move into the 21st century, "SEI is working to bridge the gap between the commercial world and the Department of Defense," she said.

Breaking Barriers With Price-Based Acquisition

Stan Soloway led a mid-morning panel looking at civil-military integration and getting to Price-Based Acquisition (PBA). The panel included Dr. Robert Hermann from the Defense Science Board; William Stussie, Deputy Assistant Secretary of

"WE SEEM TO THINK THAT WE CAN WAIT FOR THESE MANDATES AND STRATEGIES TO COME TO US...BUT OVER THE LAST TWO DAYS, I THINK WE'VE MADE SOME REAL PROGRESS FOR THE FUTURE."

—PAUL J. HOEPER
ASA(RD&A)

the Navy (Air Programs); Maj. Gen. Timothy Malishenko, the Air Force Commander of Defense Contract Management Command; and Vincent Sullivan, a contract relations advisor at IBM.

Soloway opened the Panel by introducing the first speaker, Dr. Bob Hermann, who gave an overview of PBA, followed by comments from the Panel members on Hermann's presentation.

Beginning his presentation, Hermann stated four PBA objectives:

- Access to an Integrated Industrial Base
- Access to the Best Technology and Products
- Reduction in the Cost of Ownership for DoD Systems
- Protection of the Public Interest

He then began a discussion touting the virtues of Price-Based Acquisition versus cost acquisition, listing benefits such as buying value for price, milestone billing, commercial practices, the fostering of a competitive environment, and focusing on outcome values. "We owe it to the taxpayers and troops to make an

honest, fair system that focuses on value," Hermann said.

In conclusion, Hermann stated that it will be difficult to change to PBA, but that it is the only way to gain the advantages of the commercial sector.

Each member of the panel expressed very positive views for moving A&T to PBA. They told of successes and the areas that still must be developed to make the move.

One conference attendee spoke up, saying she thought that PBA drives the acquisition community to a "one solution fits all" attitude. "Out in the field, we probably need the largest toolbox we can access," she said. This was countered by panel members saying that PBA would actually result in more flexibility for acquisition.

"The market has changed and we must change to gain from the market changes," said Stussie. "We have major cultural barriers built up over 50 years. In order to break through those barriers, we have to make big changes."

Taking Advantage of the Business Revolution

Following lunch, Steven Grundman, Acting Deputy Under Secretary of Defense (Industrial Affairs and Installations), talked about turning the declining defense market into the DoD's favor.

"We would like to shape the industry in our favor," Grundman said. "In this market, with downsizing and globalization, we have fairly limited leverage in affecting the industrial base. The most powerful tool we have is *you*: what you buy and how you buy it."

With the total DoD budget down by 55 percent since the end of the Cold War, Grundman told the conferees that acquisition personnel have to find innovative ways of working within the business world. It can be done, he told the conferees, through six strategies: innovation, robustness, affordability, reliability, security, and support.

"Exploiting the revolution in business affairs to one's advantage requires the DoD to use these methods," Grundman said.

New Ideas Pave the Way to the Future

The fall conference wound to an end with the Service Acquisition Executives Panel discussing new ideas and ways of implementing them.

Dr. Gansler moderated the panel, which included David Oliver, PDUSD(A&T); Paul J. Hoeper, Assistant Secretary of the Army (Research, Development, and Acquisition); Darleen Druyun, Principal Deputy Assistant Secretary of the Air Force (Acquisition and Management); and H. Lee Buchanan, Assistant Secretary of the Navy (Research, Development, and Acquisition).

Gansler told the attendees that the conference brought up issues that his office hopes to resolve, including the cost of reducing cycle times.

"The President, Vice President, the Service Chiefs, and the Under Secretaries are all much more interested in *today's* readiness than *tomorrow's* readiness," Gansler said. "But *future* readiness is directly related to modernization."

Druyun added that modernization wouldn't be easy with old ways of thought still in place. "From where I sit, sometimes Requirements seem ludicrous," she said. "We can really come out with a much stronger process. Education is going to be the key to what we're doing there."

Buchanan agreed that Requirements present problems, but said the information he takes away from the Conference will help shatter misconceptions. "The preservation of the status quo is not serving us well," he said.

Oliver said he was impressed with Linda Northrop's presentation about the SEI and has already seen success in the Institute's work with the DoD. "What they've done for us is working well," he said.

Hoeper told the panel that he's been attending PEO/SYSCOM Commanders Conferences for three years, and he's heard a lot of discussions about cycle time reduction and total ownership cost. But this time, he feels like the DoD is moving into the 21st century.

"We seem to think that we can wait for these mandates and strategies to come to us," Hoeper said. "But over the last two days, I think we've made some real progress for the future."

Editor's Note: For more information on the Eighth Semiannual PEO/SYSCOM Commanders Conference Presentations, visit the DSAC Web site at **http://www.acq.osd.mil/dsac** on the Internet.

AIR FORCE MAJ. GEN. TIMOTHY MALISHENKO, COMMANDER, DEFENSE CONTRACT MANAGEMENT COMMAND, SERVED ON A PANEL LOOKING AT CIVIL–MILITARY INTEGRATION AND PRICE-BASED ACQUISITION.
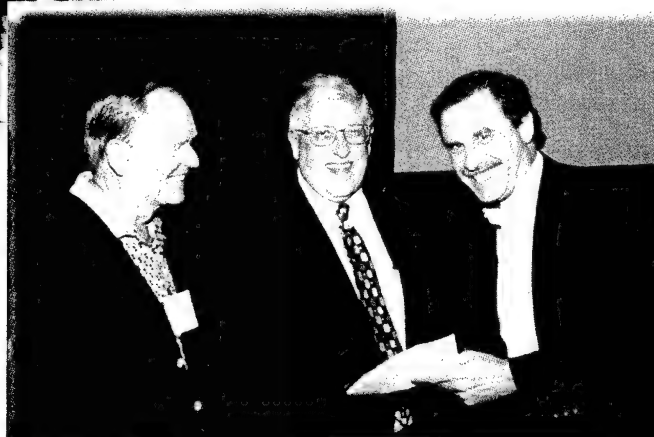
DAVID BERTEAU, CORPORATE VICE PRESIDENT OF SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

RETIRED AIR FORCE LT. GEN. 1 1 FERGUSON (LEFT), A CONSISTENT SUPPORTER OF EVERY PEO/SYSCOM COMMANDER CONFERENCE, ONCE AGAIN DELIVERED THE CONFERENCE OPENING REMARKS. ALSO PICTURED ARE " T" MONEY, SENIOR CIVILIAN OFFICIAL WITH THE OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE 3I; AND STAN SOLOWAY, DEPUTY UNDER SECRETARY OF DEFENSE (ACQUISITION REFORM).

A new self-service office supply store opened September 8, 1998, on the DSMC main campus, Fort Belvoir, Va., replete with automated inventory tracking and a new, more efficient layout. Cutting the ribbon at the new facility are Army Lt. Col. John N. Lawless, Director of the Contract and Logistics Operations Department; Navy Rear Adm. Lenn Vincent, DSMC Commandant; and Army Col. Joseph Johnson, Dean of College Administration and Services, DSMC.

SOLOWY, VINCENT WELCOME JAPANESE VICE MINISTER

DSMC, as a member of the international cooperative acquisition community, was privileged to host the Honorable Yasukazu Hamada, Vice Minister, Japan Defense Agency, during his November 2-3 visit. Vice Minister Hamada, as part of his visit, met with Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform), and Navy Rear Adm. Lenn Vincent, DSMC Commandant, to discuss American-Japanese cooperative acquisition policies and exchange acquisition information and ideas. Pictured from left: Soloway; Hamada; Vincent.

U.S. Army Materiel Command Establishes Logistic Support Unit
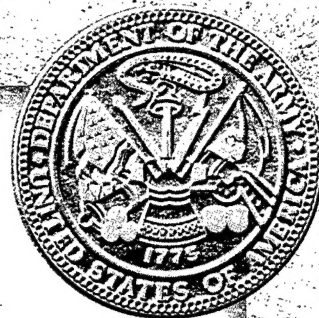
LEXANDRIA, Va. (Army News Service, Nov. 5, 1998) — In a partnering effort by the Active Army and U.S. Army Reserve, a new Logistics Civil Augmentation Program Support Unit has been established at U.S. Army Materiel Command Headquarters here.

The unit provides a contingency capability to meet combat support and combat service support requirements in managing a LOGCAP deployment. LOGCAP is an initiative by the Army to preplan during peacetime for wartime and other contingencies using contract support. Using contractors provides the Army the ability to use fewer soldiers in support roles and more in combat positions.

The LOGCAP Support Unit, a U.S. Army Reserve unit, is an important addition to the existing LOGCAP program. Members of the LOGCAP Support Unit will deploy during exercises, operations, and contingencies to provide oversight and serve as a liaison between the contractor and the Army customer.

"This new reserve unit is a significant element in the LOGCAP structure," James F. Folk, Program Manager for LOGCAP said. "Its ability to provide 'green suit' interface as well as its capability for rapid deployment worldwide are elements of the unit which will strengthen this program."

The new unit, established Oct. 17, is under the operational control of the U.S. Army Materiel Command, but its higher headquarters is the 310th Theater Support Command at Fort Belvoir, Va.

There are 66 personnel assigned to the LOGCAP Support Unit. Seven of those positions are fulltime, and 59 are Army Reservists who drill one weekend a month and for two weeks a year. A colonel will command the LOGCAP Support Unit.

The unit is tailored into flexible deployment packages to support the three logistical support elements in Europe, the Pacific, and the Continental United States (which supports Southwest Asia and the Southern Hemisphere).

The LSEs provide overall logistical support in the event of a contingency, and LOGCAP works with the LSE to provide required civil augmentation. The new unit enhances the ability of LOGCAP to support the LSE by providing a readily deployable cell, which can be tailored for each contingency. Having selected reservists in this unit who can deploy worldwide on a moment's notice greatly increases the LOGCAP capability in an event.

"Having the ability to give our customers, the Army Component commanders, tailor-made packages that meet their specifications, is the ultimate goal in our pursuit of customer satisfaction," Folk said.

The LOGCAP contract was established in 1992 under the U.S. Army Corps of Engineers. At that time the Army contracted Brown and Root to provide services such as sanitation, billeting, refuse collection, meals, showers, laundry, transportation, construction, maintenance, and utilities.

The LOGCAP contract was active during U.S. operations in Somalia, Rwanda, Haiti, and Bosnia. Brown and Root, under the direction of the Corps of Engineers, continues to support the operation in Bosnia by providing combat support and combat service support requirements.

The LOGCAP mission transitioned from the Corps of Engineers to the AMC in 1996. Dyncorp was awarded the LOGCAP contract in 1997, and will be responsible for providing combat service and combat service support functions to the Army in future operations and contingencies.

Editor's Note: This information, published by the U.S. Army Materiel Command, is in the public domain at **http://www.dtic.mil/armylink/news** on the Internet.

ACQUISITION REFORM

An Internet Listing Tailored to the Professional Acquisition Workforce

http://www.acq.osd.mil/
ACQWeb offers the Defense Federal Acquisition Regulation Supplement online, a library of USD documents, and jump points to many other valuable sites.

http://www.acq.osd.mil/ar
Hot topics in AR; reference library; *AR Today* and *AR Now;* DUSD(AR) organizational breakout; "Ask a Professor" assistance.

http://www.acq.osd.mil/api/asm/
Documentation, including Department of Defense Directives 5000.1 and 5000.2-R, Major Defense Acquisition Programs List, and more.

http://www.acq.osd.mil/te/programs/se
Systems engineering mission; Defense Acquisition Workforce Improvement Act information, training, and related sites; information on key areas of systems engineering responsibility.

http://www.deskbook.osd.mil
Automated acquisition reference tool covering mandatory and discretionary practices as well as procurement wisdom.

http://www.acq.osd.mil/dau
DAU course and schedule information; consortium school links; acquisition documents and publications. ARCC provides Acquisition Reform training information, including satellite broadcast information!

http://www.dacm.sarda.army.mil
News; policy; publications; contacts; training opportunities.

http://www.acqnet.sarda.army.mil
Documents library; training and business opportunities; past performance; paperless contracting; labor rates.

http://www.acq-ref.navy.mil/
Information on Industrial Base Integration, World-Class Practices, the Acquisition Center of Excellence, and training opportunities.

http://nardic.nrl.navy.mil
News; announcements; acronyms; publications and regulations; technical reports; "How to Do Business with the Navy."

http://www.navsea.navy.mil/sea017/toc.htm
Total Ownership Cost (TOC); Background and Documentation; Reduction Plan; Implementation Timeline; Process; TOC reporting templates.

http://www.safaq.hq.af.mil/
Reducing TOC; career development and training opportunities; library; links.

http://farsite.hill.af.mil/
FAR search tool; *Commerce Business Daily* Announcements (CBDNet); *Federal Register;* Electronic Forms Library.

http://www.acclog.af.mil/lgc/lgc.htm
Business opportunities; acquisition regulations; policy guidance and technical assistance in areas such as: performance measurement, International Merchant Purchase Authorization Card (IMPAC); commercial practices; outsourcing and more.

http://www.crfpst.wpafb.af.mil/
Federal Register and Waivers Package; documents and briefings; reference material; Frequently Asked Questions (FAQ); links to related sites.

http://www.arpa.mil
News releases; current solicitations; "Doing Business with DARPA."

http://www.disa.mil
Structure and mission of DISA; Defense Information System Network; Defense Message System; much more!

http://www.dsmc.dsm.mil
DSMC educational products and services; course schedules; *PM Magazine* and *Acquisition Review Quarterly;* job opportunities.

http://www.nima.mil
Geospatial and imagery information; publications; business opportunities.

http://www.dmso.mil
DoD Modeling and Simulation Master Plan; services; resources; activities.

http://www.dtic.mil/
Scientific and technical reports; products and services; registration with DTIC; special programs; much more!

http://www.acq.osd.mil/ec/
Policy; newsletters; Central Contractor Registration; Value Added Networks; assistance centers; Electronic Commerce/Electronic Data Interchange (EC/EDI) Handbook; EC training.

http://www.acq.osd.mil/osjtf
Open Systems education and training opportunities; studies and assessments; projects, initiatives and plans; reference library.

http://www.afit.af.mil/Schools/DL/schedule.htm
Schedule of distance learning opportunities.

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http://www.jads.abq.com http://www.jads.abq.com
JADS is a one-stop shop for complete information on distributed simulation and its applicability to test and evaluation and acquisition.

http://www.gidep.corona.navy.mil
Federally funded co-op of government and industry participants that provides an electronic forum to exchange technical information essential during research, design, development, production and operational phases of the life cycle of systems, facilities, and equipment.

http://www.arnet.gov/
Virtual library; federal acquisition and procurement opportunities; best practices; electronic forums; business opportunities.

http://www.faionline.com
Virtual campus for learning opportunities as well as information access and performance support.

http://nais.nasa.gov/fedproc/home.html
Procurement and acquisition servers by contracting activity; CBDNet; Reference Library.

http://www.gao.gov
Access to GAO reports, policy and guidance, and FAQs.

http://www.gsa.gov
Online shopping for commercial items to support government interests.

http://www.loc.gov
Public laws; legislation; vetoed bills; Congressional Internet services.

http://www.npr.gov/
NPR inititatives; "how to" tools; customer service; newsroom; online resources; accomplishments and awards.

http://chaos.fedworld.gov/ordernow/
Online service for purchasing technical reports, computer products, videotapes, audiocassettes, and more!

http://www.SBAonline.SBA.gov
Communications network for small businesses.

http://www.uscg.mil
News and current events; services; points of contact.

http://www.govcon.com/
Access to current and back issues with search capabilities; business opportunities; interactive yellow pages.

http://www.eia.org
Government Relations Department includes links to issue councils.

http://www.ncmahq.org
"What's New in Contracting?"; educational products catalog.

http://www.ndia.org
Association news; events; government policy; *National Defense Magazine.*

http://www.sole.org/
Online desk references that link to logistics problem-solving advice.

http://catt.bus.okstate.edu http://catt.bus.okstate.edu
Collaborative effort between government, industry, and academia. Learn about CATT and how to participate.

http://www.dsp.dla.mil
All about DoD standardization; key POCs; FAQs; MilSpec Reform; newsletters; training; non-government standards; links to related sites.

http://www.acq.osd.mil/pm
Implementation of Earned Value Management; latest policy changes; standards; international developments; active noteboard.

http://www.fedworld.gov
Comprehensive central access point for searching, locating, ordering, and acquiring government and business information.

http://www.fss.gsa.gov
Go to "GSA Advantage" for assistance in using the government-wide IMPAC Card.

If you would like to add your Web site to this list, please call the Acquisition Reform Communications Center (ARCC) at 1-888-747-ARCC. DAU encourages the reciprocal linking of its Home Page to other interested agencies. Contact the DAU Webmaster at **dau_webmaster@acq.osd.mil**